AMERICAN GAS ASSOCIATION

Monthly

NE 1951

5th international award to A.G.A. monthly

Your A.G.A. magazine received a signal new honor during the 1951 annual publications contest sponsored by International Council of Industrial Editors. In addition to winning another highest award, the Monthly was chosen as the top publication in the association and fraternal group. More than 800 magazines from the United States and Canada were entered in the 1951 contest. Judges awarded A.G.A. Monthly a total of 95 out of a possible 100 points on the basis of accomplishment of its purpose, and editorial, appearance, production achievement.

Award
American Gas Association Monthly
American Gas Association
In recognition of exceptional accomplishment in achievement of purpose, excellence of editorial content and effectiveness of design
INTERNATIONAL COUNCIL OF INDUSTRIAL EDITORS
1951

Similiar awards for achievement were received by the Monthly in 1945 • 1946 • 1949 • 1950

Men and machines completing 30-inch Texas loop line of Southern Counties Gas Company in California. Photograph by Bill Bariteau

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ECONOMISTS agree that heat energy is the life-blood of modern nations. They point to power-poor countries that enjoy only second or third-class status. The United States, on the other hand, has developed abundant energy, more than 20 percent of which is supplied by natural gas. Gas is a major fuel for the defense program—it plays an important role in the making of steel and aluminum; it is used to produce more than 80 percent of all the copper and 95 percent of the potash produced. . . . What about the future? Where will the United States, with its natural gas, be a few years from now? Some dramatic clues were supplied last month at the A. G. A. meeting in Dallas. President Hulcy, newly elected head of the Chamber of Commerce, suggested that all challenges will be met if our economy remains vigorous and unfettered. Paul Kayser added that current use of natural resources can be followed by development of synthetic fuels, should the need arise. . . . Industry's "national fueling system" has been spectacularly successful in the past. Backed by a national rather than a regional outlook, it can lead America to its greatest future.

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George F. Mitchell (left), president, The Peoples Gas Light & Coke Co., first vice-president of A. G. A., chatting with Frank H. Lerch, Jr., president, Consolidated Natural Gas Co.; Rock G. Taber, president, and Ben L. Maulsby, both from Atlanta Gas Light Co.

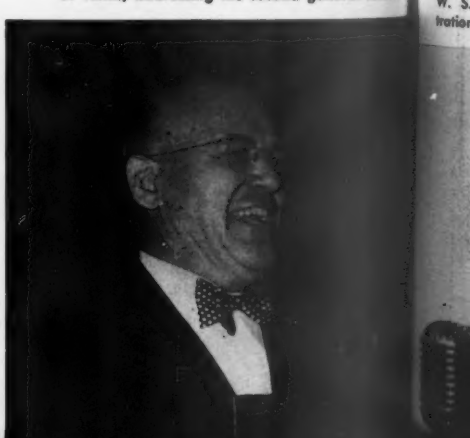
Elmer F. Schmidt (left), Dallas Program Committee chairman, with C. E. Bennett, chairman, Natural Gas Department, A. G. A. second vice-president

Speakers John E. Goble (left), president, National Tube Co., and Frank H. Lerch, Jr., president, Consolidated Natural Gas Co., with D. A. Hulcy (center), president, A. G. A. and Lone Star Gas Co., and C. E. Bennett (far right) chairman, A. G. A. Natural Gas Department

Checking points on Dallas program: (Left to right) Robert A. Hornby, vice-president, Pacific Lighting Corp.; J French Robinson, Cleveland, chairman, A. G. A. National Defense Committee, and Arthur F. Bridge, Los Angeles, chairman of A. G. A. Laboratories Managing Committee

A few of the nearly 1,000 delegates registering for the spring meeting of the Association's Natural Gas Department in Dallas, Texas, heart of the natural gas producing area

Olin Culberson, chairman, Railroad Commission of Texas, addressing the second general session



Natural gas spurs nation's economy

H. A. Rhodes (left), Transcontinental Gas Pipe Line Corp., communications speaker, with A. B. Lauderbaugh, The Manufacturers Light & Heat Co.

Transmission: (L. to r.) Speaker Alan A. Cullman, chairman, Accounting Section; M. V. Burlingame, chairman, Transmission Committee, and Speaker Arthur W. Emerson, U.S. Department of Agriculture

W. S. Tarver, official of Petroleum Administration for Defense, discussing steel shortage

Natural gas stands ready to make tremendous contributions to the nation's war preparedness program. This fact stood out at the annual Natural Gas Spring Conference held in the Baker Hotel, Dallas, Texas, May 7 and 8. Nearly 1,000 executives attended the A. G. A.-sponsored meeting which underscored the most urgent problems facing this fast-growing industry.

Opening the meeting, Charles E. Bennett, A. G. A. vice-president and chairman of the Natural Gas Department, said the natural gas industry is prepared to meet the extreme demands for fuel under an all-out defense program. At the same time it will furnish complete natural gas requirements to millions of long-established domestic, commercial and industrial consumers. "The order of the day is building the armed forces of our country and we will do our part," he declared.

Mr. Bennett cautioned the industry to practice good public relations in all its aspects. Production, transmission and distribution branches of the industry are interdependent and must cooperate for the public welfare. "Never forget," he said, "we are all in a public utility business together."

Mayor J. B. Adoue, Jr. of Dallas welcomed the delegates to the heart of the natural gas producing area. "You are the purveyors of a God-given fuel," he pointed out, "and it belongs to the people."

Phenomenal growth of the gas industry in a free economy was stressed in a major address by D. A. Hulcy, president, American Gas Association, and president of the host company, Lone Star Gas Co., Dallas. Mr. Hulcy, who had just been honored with the presidency of the United States Chamber of Commerce, said the gas industry had created a national fueling system "the like of which has never existed on earth before."

Today the gas industry has 52 percent more customers than it had in 1935, Mr. Hulcy reported. In that period the population of the country advanced less than 20 percent. Total gas sales gained 223 percent from 1935 to 1950. This enormously increased service was provided at lower cost, Mr. Hulcy said, pointing out that while gas sales increased 223 percent, dollar revenue rose less than 167 percent, or from 750 million to nearly two billion.

Financial expansion of the industry since World War II

is "a real wonder story," according to Mr. Hulcy. "It came out of that war with assets valued at about five billion dollars. Today its total assets are fully nine billion dollars, and will soon reach ten billions, thus doubling since the close of World War II."

Natural gas has sparked much of the vast industrial expansion of the United States in this century, Mr. Hulcy continued. At the beginning of 1900 it provided three percent of the energy supply. "Today it provides fully 20 percent of a supply that is four times as great as in 1900." In other words, he explained, while the energy supply of America was multiplied by four, the energy provided by natural gas was multiplied by more than 26.

During this 50 year period, it is obvious, Mr. Hulcy declared, that "we followed a national fuel policy that met the needs of the United States in times of peace and war." That policy was a free economy. "It has been the policy of relying on competition among all forms of fuels, subject only to regulation to achieve conservation in production and to the ordinary rules of fair play applicable to all business activity." Why abandon that policy, Mr. Hulcy concluded, for a policy of government planning and political management?

Adding force to Mr. Hulcy's remarks, J. E. Goble, president, National Tube Company, Pittsburgh, cited the amazing expansion of steel capacity under the free enterprise system. Annual ingot capacity of the industry today stands at more than 104 million tons, or 100 percent more ingot steel than was produced by the American steel industry in 1939 when World War II was starting.

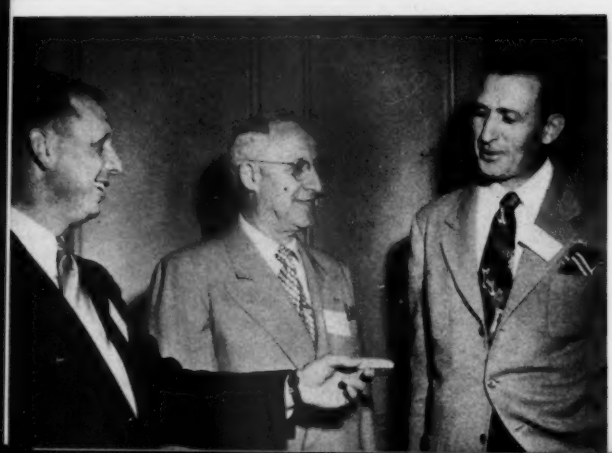
Mr. Goble estimated that by 1950 almost 30,000,000 tons of gas pipelines were in the ground in the United States, or 89 percent more than the 15,900,000 tons buried by 1940. Pointing up the vast expansion of natural gas, Mr. Goble said that average sales of gas and oil transmission pipe lines amounted to only 350,000 tons per year from 1936 through 1945. Sales thereafter rose to the point where in 1950 the steel industry shipped over 2,425,000 tons—or 16,100 miles of pipe lines.

Total capacity for production of all pipe and tubular goods in the United States is now 12 million tons, an increase of 43 percent in six years, Mr. Goble said. At the present time, large diameter transmission pipe (over 26 inches in diameter) is being produced at the rate of more than one million tons annually.

Noting the tremendous importance of the gas industry in peace and war, Mr. Goble predicted that, barring fresh international complications, the 1950 production rate of 2,425,000 tons of steel for transmission pipe will be exceeded in 1951 and 1952. This probably will not be sufficient to satisfy all

Harry K. Wrench (left), president, Minneapolis Gas Light Co., and S. B. Severson, president, Republic Light Heat and Power Co., Inc., Buffalo

Get-together at A. G. A. natural gas meeting: (Left to right) F. A. Lydecker, vice-president, Public Service Electric & Gas Co.; C. H. Zachry, president, and Van Thompson, both from Southern Union Gas Company



R. R. Suttle (left), managing director, Southern Gas Association; L. L. Dyer and L. H. Wimberly, president and first vice-president, SGA

demands, he said, but it will go a long way.

Frank H. Lerch, Jr., president, Consolidated Natural Gas Co., New York, in an address entitled "Regulation and Legislation from Management's Viewpoint," painted a picture of excessive regulation of utilities. The gas industry, he said, is in "the no-man's land of conflict" between the Federal Power Commission and the state regulatory commissions.

The FPC's theory of regulation in which the rate base must be original cost when first devoted to public service, less accrued depreciation, was scored by Mr. Lerch as the lowest possible rate base that could be obtained. This theory might lead to the complete elimination of any rate base "with the result that no return on investment may be allowed in the rates to be fixed."

"How such a theory, applied to its ultimate conclusion, can result in anything but government ownership without paying for value received, I don't know," Mr. Lerch stated. He recommended a program of informing congressmen of the facts involved so that remedial legislation would be passed.

The increasing concern of Texans over the export of natural gas to other states was emphasized in a talk by Olin Culberson, chairman, Railroad Commission of Texas, which concluded the first general session. He asked the pipeline industry not to drain Texas of its "irreplaceable natural gas." There will come a day, he warned, when this gas may be exhausted. The experts, he noted, may say there is a hundred years' supply left and more may be discovered, but Mr. Culberson declared:

"What's a hundred years in the economy of Texas or the United States!"

Countering Mr. Culberson's fears, Paul Kayser, president, Independent Natural Gas Association of America, and president, El Paso Natural Gas Co., Houston, made a strong plea for continued expansion of natural gas. Not only are natural gas reserves ample and rising, he said, but the Constitution of the United States calls for treatment of the nation's assets as a whole and not as a group of separate states. "No individual state," he declared, "can place restraints on interstate commerce."

A native Texan, Mr. Kayser noted that while oil reserves are placed at a minimum of 14 years, natural gas reserves at present rates of production are estimated at between 26 and 30 years. "At no time since the industry started estimating reserves has there been a low relationship between reserves and production. For the past 25 years discoveries and expansions of proved reserves have exceeded production, and in the past five years new discoveries and extensions have exceeded production by more than 100 percent, despite record consumption."

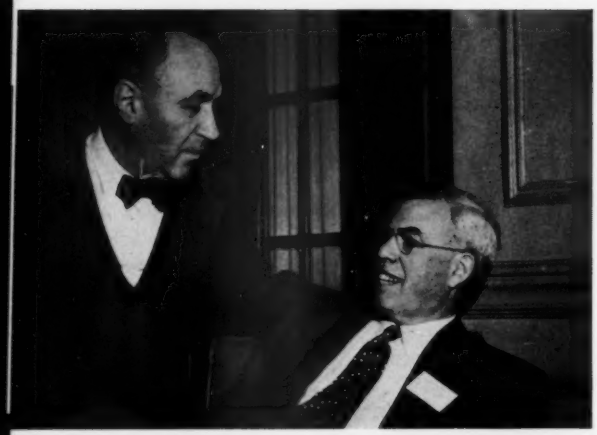
William S. Tarver, assistant general counsel, Petroleum Administration for Defense, presented a paper by Bruce K.

E. P. Noppel (left), vice president, Ebasco Services Inc.; H. Leigh Whitelaw, managing director, Gas Appliance Manufacturers Association

Participants in Monday transmission session: (Left to right) J. S. Quill, General Electric Co., and his co-author, J. F. Eichelmann, El Paso Natural Gas Co., with M. L. Arnold, Richfield Oil Corporation

T. M. Ritchie (left) and Lyon F. Terry (right) Chase National Bank, New York, with W. T. Stevenson, president, Texas Gas Transmission Corp.

Present, when the Transmission Committee met at luncheon, were, left to right, around the table: H. L. Fruechtenicht, Jr., Jackson, Mich.; J. T. Innis, Omaha; D. C. Palm, Chicago; Aubrey Roberts, Owensboro, Ky.; V. H. Kyle, Detroit; M. V. Burlingame, chairman, Chicago; George H. Smith, New York; W. H. Davidson, Houston; E. A. Koenig, Shreveport; M. K. Hager, Kansas City; J. W. Kelley, Charleston; J. W. Hall, Houston; and Maurice Meyer, Oklahoma City



What's new in natural gas: A. M. Beebee (left), president, Rochester Gas & Electric Corp., conferring with L. B. Bonnett, vice-president, Consolidated Edison Co. of New York, Inc., between sessions of the A. G. A. Natural Gas meeting in Dallas

Brown, Deputy Administrator, PAD, giving a more pessimistic picture of the steel shortage than the steel industry's representative, Mr. Goble. "After deducting certain 'must' uses of small diameter pipe," he said, "it appears improbable that the supply of large-diameter pipe for gas and oil transmission lines will add up to more than half the amount needed before winter to finish pipelines under construction." Increased steel production and cutbacks in civilian supply may improve this picture, he added.

Mr. Brown's paper explained in some detail the organization of PAD and how it plans to operate. He expressed strong belief that "the oil and gas industries can be nurtured with a minimum of regulations." With the construction materials they need, he expressed confidence that any reasonable civilian and military demands would be met.

Delegates received an overall view of the A. G. A. PAR-financed research program from Elmer F. Schmidt, chairman, Technical and Research Committee, and vice-president, Lone Star Gas Company. He described in detail the various projects under way in the last six years in the field of natural gas production and transmission. About $260,000 has been spent in this field with excellent results, Mr. Schmidt reported.

Rounding out the final general session, the Pacific Gas and Electric Co., San Francisco, presented the "P.G.&E. Super-Inch" a colorful motion picture showing construction of the 500-mile, 34-inch line from Topeka to Milpitas. At this same session, it was announced that the next Natural Gas Spring Conference would be held May 12-13, 1952 in Los Angeles.

Both Monday and Tuesday afternoons were devoted to technical reports sponsored by the Transmission Committee under the chairmanship of M. V. Burlingame, vice-president, Texas Illinois Natural Gas Pipeline Co., Chicago. At the Monday session, J. S. Quill, General Electric Co., Schenectady, presented a paper prepared jointly with J. F. Eichelmann, El Paso Natural Gas Co., describing features of a gas turbine centrifugal compressor station for gas pipe line pumping. M. L. Arnold, Richfield Oil Corporation, Los Angeles, spoke on experience in dampening pulsations in compressor piping systems. At this same session, Arthur W. Emerson, Soil Conservation Service, U. S. Department of Agriculture, described a proven approach to pipeline right-of-way maintenance.

The Tuesday transmission meeting opened with a discussion of modern communications, the nerve center of pipeline systems, by H. A. Rhodes, Transcontinental Gas Pipe Line Corp., Houston. A. A. Cullman, chairman of A. G. A.'s Accounting Section, and assistant treasurer, Columbia Engineering Corp., New York, spoke on operating aspects of gas storage accounting. This part of the program concluded with a showing of the motion picture "Transcontinental Story" illustrating the construction of the Texas to New York natural gas pipe line. This feature was sponsored by Transcontinental Gas Pipeline Corp., Houston.

Meetings of the A. G. A. Executive Board, Natural Gas Managing and Advisory Committees, Technical and Research Committee and Subcommittees, and the Transmission Committee, were held during the conference.

Quotes

Leaders detail the gas industry's rapid increase in economic and defense value, while citing technical advances

Natural Gas Spring Meeting

● BRUCE K. BROWN, deputy administrator, Petroleum Administration for Defense, Washington, D. C.—"We in PAD believe that if the oil and gas industries can be nurtured with a minimum of regulations and with the construction materials they need, they can meet any reasonable civilian and military demand."

● PAUL KAYSER, president, El Paso Natural Gas Co., El Paso, Texas—"In the making of steel, natural gas is an absolute essential in certain heat-treating processes. It is imperative that the steel mills all over the country have dependable and expanding quantities of natural gas to maintain an expanding steel production, the most vital sinew of defense."

● D. A. HULCY, president, Lone Star Gas Co., Dallas, Texas, and president, American Gas Association—"During a period in which the energy supply of America was multiplied by four, the energy provided by natural gas was multiplied by more than 26."

● F. H. LERCH, JR., president, Consolidated Natural Gas Co., New York, N. Y.—"Nothing could be more effective in working out the correction of many difficulties which arise in multi-regulation of public utilities than to have a spate of grass roots opinion lapping at the doors of Congress."

● J. F. EICHELMANN, El Paso Natural Gas Co., El Paso, Texas and J. S. QUILL, General Electric Co., Schenectady, N. Y.—"Economic comparison data between reciprocating gas engines and gas turbines strongly favored the gas turbine, with yearly cost of gas turbines almost half of that of gas engines for pumping the same amount of gas."

● A. A. CULLMAN, assistant treasurer, Columbia Engineering Corp., New York, N. Y.—"At December 31, 1950 the gas industry had almost 350 billion cubic feet of gas in underground savings banks. These might be referred to as demand deposits because the gas is safely there until we need it—and it can be withdrawn on demand."

● ARTHUR W. EMERSON, Soil Conservation Service, Region 5, Lincoln, Neb.—"Every pipeline company of any importance should have a qualified public relations man to work with public officials, soil conservation district supervisors, the farmers and ranchers. After all, the foundation of your business is the right-of-way which carries your transmission line."

● E. F. SCHMIDT, chairman, A.G.A. Technical and Research Committee—"As compared to private research, the most advantageous aspect of association research is the much lower individual company cost. In addition: There is a better selection of projects from the viewpoint of industry's need; diversified thinking is brought to bear on the problem; wise and effective supervising is obtained through the cooperation of top executives and the best technical minds, who make up the several committees; and, through the use of research subcommittees, the frank exchange between companies of technical and operating information is encouraged.
"The down-to-earth work-a-day type of research is the hallmark of a progressive industry."

● J. E. GOBLE, president, National Tube Co., Pittsburgh—"The 375,000 miles of utility gas pipe lines in the ground in 1950 would encircle the world 15 times. This represents almost 30,000,000 tons of pipe, as compared to the 15,900,000 tons in the ground in the United States in 1940—an increase of 89 percent during ten years."

Production and Chemical Conference

● EDWIN L. HALL and E. J. WEBER, A.G.A. Laboratories—"The first requisite for interchangeability of any two gases is that original burner adjustments and resultant burner adjustments meet the conditions set forth by flame limit curves. . . . Consideration must also be given to the performance of the appliance as a whole."

● J. W. CARROLL, Philadelphia Electric Co.,—"Our management's wholehearted support of safety enables us to provide the equipment, process design and training required for a safe plant. Our management's recognition of and insistence on a good safety record encourage us to be successful."

● T. L. ROBEY, secretary, A.G.A. General Research Planning Committee—". . . it is the function of A.G.A. research to investigate those problems that are common to large segments of our industry and that are too big, too complicated and/or too expensive to be undertaken by gas company personnel busily engaged in maintaining gas supplies and services."

● *Wider distribution will increase war mater*

Natural gas essential to a strong defense

By PAUL KAYSER

President, El Paso Natural Gas Co.
El Paso, Texas

Expanded use of natural gas will greatly facilitate the production of war materials. At the same time it will permanently expand our economy and give both short- and long-range support to our standard of living.

Currently, natural gas is filling an important demand for fuel in the production of munitions and war materials. Gas supplies the fuel for the production of more than 80 percent of all copper and 95 percent of the potash. More than 50 percent of the great plants of the chemical industry are located on the Gulf Coast, for ready access to large volumes of natural gas at low cost. No war can be fought successfully and no economy can be maintained in modern times without a vigorous and expanding chemical industry. Natural gas is essential for each of these defense-production purposes.

In the making of steel, natural gas is an absolute essential in certain heat-treating processes. It is imperative that steel mills all over the country have dependable and expanding quantities of natural gas to maintain an expanding steel production, the most vital sinew of defense. Natural gas is playing an increasing part in the production and processing of aluminum, as witnessed by use of large volumes of gas in Tennessee and the recent location in the Corpus Christi area of an aluminum plant to use 50,000,000 cubic feet of gas per day for production of aluminum for the defense program.

In respect to the actual training of troops, the Southwest and California is the greatest training ground in the entire country. The vast majority of training camps were located in this area in the last war and many are being reactivated at this time. In practically all of these camps natural gas was the fuel used and this demand must be met as these camps are put back into service. From the standpoint of the pipe line, they are not a desirable load, but from the standpoint of the military authorities natural gas is the most efficient fuel because its use requires the minimum of the trainees'

Abridged version of address at A. G. A. Natural Gas Department Spring Meeting, Dallas, Texas, May 7-8, 1951

production and give long-range support to the civilian economy

time, leaving the maximum time for military training.

In respect to the maintenance of the economy at a high production level, natural gas assumed a more important place in the national fuel picture. In 1941, natural gas contributed 11.1 percent of the energy derived from all sources; in 1949, natural gas provided 18.7 percent.* And the trend indicates that at this time—1951—an even greater use of natural gas in proportion to other sources of energy.

The total utility sales of natural gas increased 98.0 percent between 1941 and 1949, while indications are that an even greater increase will be reported for 1950. But more significant is the 139.7 increase in residential and commercial sales in the same period, with indications that 1950 will show sales more than three times those for 1941.

These users cannot readily substitute other fuels and their needs must be met if the economy is to remain vigorous and healthy. In addition, substantial expansion must be provided if the economy is to expand to meet defense needs.

Healthy condition

Whether or not new pipe lines are to be built into new areas and the extent of the expansion of present systems in interstate commerce is a matter for the joint decision of the Federal Power Commission and the Petroleum Administration for Defense. This question should be decided on full consideration of all the facts in hearings before the FPC including the vital question of the availability of other fuels. The natural gas industry is in excellent condition to meet its responsibility under the Defense Program.

The proven reserves of natural gas will support the present rate of production in this country for a period in excess of 26 years, but the rate of discovery of reserves exceeds consumption on the average by more than double. So long as this trend continues, there is no occasion to be concerned about the exhaustion of the reserves. So long as this trend continues there is no necessity to construct or put in operation plants for the production of synthetic high Btu gas from either coal or oil shale. The technology of the construction and operation of such plants should be fully developed as rapidly as such technology can be advanced, but so long as the reserves are rising each year there is certainly no occasion to put such plants into commercial production.

The natural gas industry has been accused by some of its opponents of having displaced other fuels and, therefore, of having disrupted the national economy by substituting a natural resource with a more limited life than the one displaced. From this they have reasoned that expansion of the natural gas industry should be curbed in the interest of the stability of our economy.

On the contrary, the natural gas industry has in the past and is now making a permanent contribution to a more efficient economy than has existed heretofore. By taking present freight rates for coal and present costs of transporting gas by large diameter high pressure pipe lines and, likewise, costs of transporting oil through large diameter high pressure pipe lines, it can be demonstrated—and I have had competent engineers draw the charts making such demonstration—that the transportation of a unit of energy, namely a kilowatt hour, by means of coal by railroad is the most inefficient method of transportation of such unit of energy; that the most efficient transportation of such unit of energy is that of oil by high pressure diameter pipe line (with the exception of tanker transportation where water transportation is available), and that the next most efficient method of transporting a unit of energy is by the transportation of 1000 Btu natural gas by high pressure large diameter pipe lines.

The natural gas industry has, over the past five years, constructed large diameter pipe lines clear across the United States, from coast to coast, and from the Canadian border to the Gulf of Mexico. This is a brand new system of highly efficient transportation that did not exist six years ago in anything like its present magnitude.

A number of these great pipe lines traverse the coal areas, and all of them are within such distance that they easily can be connected to plants at the mouth of the mines.

Under the rules of the Federal Power Commission all of these pipe lines are projected upon the basis of known gas reserves and financing has been done upon the basis of complete amortization of the debt prior to the exhaustion of the present proven reserves of natural gas.

Under the trend indicated by an analysis of consumption, and of new discoveries of reserves, of natural gas, these reserves will last very much longer than the present proven reserves indicate. This is shown by the fact that the proven reserves have increased more than 25 trillion cubic feet over the past five years in spite of the increase in consumption that has occurred during such period.

Vast system

Nevertheless, within reason there will come a time when these reserves will become exhausted but, at that time, this new efficient system of transportation will be available for connection to huge plants, built at the mouth of the mine, which will make synthetic gas of approximately 900 Btu content that will be transported to market and delivered to the same burners that are now using natural gas. So that, in fact, we are constructing a vast transportation system that will make energy available to markets in the most efficient manner and will make possible the utilization of the total energy resources of the United States at the least cost to the consumer. Rather than the natural gas industry's expansion disrupting the nation's economy, it is building a more stable and efficient economy for the use of our natural resources.

Technology for the construction and operation of synthetic plants has already progressed to the point that competent engineers tell us that most petroleum products and 900 Btu gas can be made

* EDITOR'S NOTE: The Bureau of Mines, in its "Coal—Bituminous & Lignite, 1949," gives a preliminary report of 19.4 percent of nationally consumed energy having been provided by natural gas.

from coal and oil shales. The Carthage Hydrocol plant at Brownsville is now engaged in developing the making of petroleum products from natural gas. The development of certain phases of this operation will greatly expedite the making of high Btu gas from coal. This is a major plant and has involved an expenditure in excess of $45,000,000 and is sustained by oil and natural gas industries.

Further advances should be made as rapidly as human ingenuity can go but there is certainly no necessity to put such plants into commercial operation so long as our reserves are expanding more rapidly than our consumption. Whenever we turn over the hill of our gas reserves there will be time enough to construct and place in operation plants for the making of synthetic gas from the available resources of coal and oil shale.

These considerations lead to the inevitable conclusion that the practical common sense thing to do is for us to continue to use the resources of natural gas and petroleum that we have. In so doing, we are developing a system of transportation and marketing that will be available to take advantage of the use of synthetic fuels whenever such is necessary.

We can freely use these resources for defense as necessary, without fear that we will be exhausting our national economy to the extent that after the emergency we will have to lower our standard of living. Under the spur of defense and under the spur of competition that exists in both the petroleum industry and the natural gas industry, technology has been advanced to the point where we can reasonably expect a greater utilization of these products and a greater advance in the technology of making available synthetic fuels than has occurred in the past. We can reasonably expect to maintain as high, and even higher, a standard of living through the utilization of our energy resources in the future than we have had in the past.

The key to the high standard of living in this country is our highly developed use of its energy resources. Using resources of oil and gas, instead of hoarding them, we will have a system so developed that when these resources are exhausted we will be able to substitute in their place the synthetic fuels made from coal and shale and, therefore, maintain for the maximum time our high standard of living.

Sixth year PAR Plan work guards industry's future

MORE THAN $1,750,000 was spent under the PAR Program last year to assure future development of the gas industry. This amount was voluntarily contributed to the Promotion, Advertising and Research (PAR) Plan of American Gas Association by 172 small, medium and large gas utility companies, nine pipeline companies in the United States and six Canadian utilities. A special subscription for research also was received from a large manufacturing company not directly allied with the gas industry.

Accomplishments and specific activities of the PAR Plan in 1950 are outlined in a new 40-page, illustrated report, "Your Investment in the Gas Industry's Future." This report shows how the PAR Committee, headed by Everett J. Boothby, president, Washington Gas Light Co., has carried on an adequate program of sales promotion, advertising and research on a national level and stimulated the efforts of individual gas companies and manufacturers in these fields.

The report points out that for every $100 of the utility company's PAR subscription, $9.40 was spent in promotional campaigns to develop greater sales of gas and gas appliances; $35.90 was invested in research projects to develop new methods of producing, mixing and utilizing gas; $53.00 was spent in national advertising to tell magazine readers of the advantages of gas for domestic, commercial and industrial purposes; and $1.70 was spent on costs of administering the Plan. A two-page center spread in two colors, graphically visualizes the complete PAR Plan and its aims and operational functions.

A complete review of the sixth fiscal year of the PAR Plan is given by the PAR Committee. Tangible and intangible results achieved are set forth and some of the future opportunities ahead of the industry are outlined. Separate reports are included by Frank C. Smith, president, Houston Natural Gas Corp., and chairman, General Promotional Planning Committee, and by Edward P. Noppel, vice-president, Ebasco Services, Inc., chairman, General Research Planning Committee. Edward G. Boyer, manager, gas department, Philadelphia Electric Co., reported on the Gas Production Research Program. Elmer F. Schmidt, vice-president, Lone Star Gas Co., and R. J. Rutherford, president, Worcester Gas Light Co., brought subscribing members up to date on projects carried on in fields of natural gas production and transmission, and domestic gas research, respectively. Lester R. Potter, assistant to the president, Lone Star Gas Co., reported on industrial and commercial gas research.

A limited number of copies of "Your Investment in the Gas Industry's Future" are available to A. G. A. member companies without charge.

Natural gas industry still expanding

CURRENT construction of 7,618 miles of new natural gas pipeline involving record expenditures of $630 million will bring new or additional benefits this year to millions of homes and thousands of industries in 125 cities of 50,000 or more population and in countless neighboring communities.

In addition to construction now under way, as authorized in 1950 by Federal Power Commission, the fourth annual pipeline survey of Gas Appliance Manufacturers Association has revealed that major applications involving an additional 15,866 miles of pipeline, to cost an estimated $943,640,000, awaited hearing and disposition by the Commission on January 1, 1951.

"The growth of the natural gas industry is without parallel," H. Leigh Whitelaw, managing director of GAMA, said in releasing the survey. "Pipelines have made it possible to transport natural gas from the producing fields to cities more than 2,500 miles away. Today no major city is beyond the reach of this vital, low-cost fuel.

"Latest expansion, assuring a steady gas flow to millions of additional homes and industrial plants, now brings the pipeline aggregate to a total of 296,000 miles, including field and gathering lines, 69,000 more than the combined mileage of all U. S. railroads."

Mr. Whitelaw said that assurances of adequate supplies of recoverable natural gas encouraged American capital to embark on the industry's multi-billion-dollar program of construction. Despite a rapid rise in gas used by residential and industrial consumers during the past five years, new gas reserves each year have exceeded the annual rate of usage, he said.

Current proved recoverable reserves, as estimated jointly by the American Gas Association and the American Petroleum Institute, the GAMA study reminded, are at 185.6 trillion cubic feet—5.2 trillion over reserves of the preceding year—despite record consumption of natural gas during 1950.

The most significant occurrence in the industry last year, Mr. Whitelaw said, was the introduction of natural gas to large population centers of the Eastern seaboard. However, at the beginning of this year dockets pending before Federal Power Commission were directed at practically all sections of the country.

For example, the Northwest is the center of three projects, two of which call for the utilization of gas from Canadian fields, the third involving 2,500 miles of pipeline from Texas at a cost of more than $174 million. The New England and Southeastern areas also are prominent in projected natural gas line of march.

Excess profits taxation

By LEO A. DIAMOND

Chadbourne, Wallace Parke, Wolff & Brophy New York, N. Y.

Excess profits taxation is a phenomenon of wartime economy whether or not fullscale military hostilities are carried on.

The term "excess profits" means all things to all men. Unlike other forms of tax, mere mention of a tax on excess profits arouses great and heated controversy. Even many of those who support it during times of national emergency as a rough but ready means of taxing profits concede that it is erratic and inequitable in calmer days.

Others, friends of the principle of an excess profits tax, admit the tax is "discredited by clumsy means" but nevertheless support its place in the federal tax system. The nub of the controversy about desirability, effectiveness and equity of an excess profits tax lies primarily in the determination of how much of the taxpayer's profits shall go untaxed. Thus, there is considerable disagreement on what is really meant by excess profits or profits that are so excessive as to be subjected to additional tax. It is, therefore, not far from the truth to say that at least the most important technical development of excess profits taxation since 1917 lies in the expansion of the concept and reach of the excess profits credit.

The present excess profits tax is patterned largely along the lines of its World War II counterpart. Although the current tax is to end June 30, 1953, world tensions may well force its continuation beyond 1953. The present excess profits tax rate is 30 percent and is in addition to rates of normal tax and surtax aggregating 47 percent. Hence, the portion of corporate income which is subject to normal tax, surtax and excess profits tax bears a maximum total tax rate of 77 percent. Under the earlier excess profits tax, the comparable figure was 85½ percent which represented a gross total rate of 95 percent, reduced however by a ten percent postwar refund.

To say no more about rates at this point would be clearly to tell only part of the story. At present, the combined rate of normal tax, surtax (including the additional two percent surtax in case of consolidated returns) and the excess profits tax—all applied to excess profits net income—cannot exceed 62 percent of excess profits net income.

Exclusive purpose of the ceiling is to limit the amount of excess profits tax payable, not the amount of other income taxes. Thus, when the ceiling is applicable, the amount of excess profits tax is limited to the difference between 62 percent of excess profits net income and the aggregate of a theoretical normal tax and surtax (including the additional two percent surtax in case of consolidated returns) determined on excess profits net income. The real or actual normal tax and surtax paid are irrelevant to the limitation; likewise, the actual normal tax net income or surtax net income is immaterial.

In sum, the total taxes actually payable are not necessarily 62 percent of either normal tax net income, surtax net income or excess profits net income. The total amount actually paid may be either more or less than 62 percent of any of them. In effect then, the 62 percent limitation means 62 percent of excess profits tax net income plus or minus income tax on the net differences of income caused by excluding from excess profits net income such items as capital gain, dividends received, disallowed interest deductions or borrowed capital and other similar items. Inasmuch as ultimately the applicability of the ceiling depends upon the excess profits credit, that ceiling may be disregarded if the credit is more than 50 percent of excess profits net income.

Under World War II excess profits tax, a somewhat comparable but nevertheless different type of ceiling restricted the total rate of income tax, surtax and excess profits tax to something more than 72 percent of surtax net income after allowance for the ten percent postwar credit.

A further word is appropriate as to the differences in rate structure of excess profits tax under the present Act and its World War II counterpart. Under the latter tax, there were two "baskets" of income. Every dollar of corporate taxable income was either subject to normal tax and surtax in the one basket or to excess profits tax in the other basket. Any adjustment in excess profits tax meant a further adjustment in normal tax and surtax; any adjustment in ordinary income tax necessitated a change in excess profits tax.

At the present time, however, that interdependence of taxes is avoided. An adjustment in excess profits net income alone will have no effect on the normal tax and surtax inasmuch as the excess profits tax is an additional tax. An adjustment in income subject to normal tax and surtax may or may not require a further

Abridged version of address presented at A.G.A.-E.E.I. National Conference of Electric and Gas Utility Accountants, Chicago, April 23-25, 1951.

adjustment in excess profits tax. Abandonment of the two basket approach permits treating the income tax and excess profits tax as one tax for determining interest on refunds and deficiencies, periods of limitations for assessment and refund purposes, issuance of statutory notices of deficiencies and for other administrative purposes.

As in the case of World War II excess profits tax, the present law requires that in computing income subject to excess profits tax start must be made with normal tax net income. To such net income a number of adjustments are made for taxable years beginning on or after July 1, 1950, the effective date of the tax. Principal adjustments are briefly as follows:

First, in lieu of the 85 percent dividends received credit on dividends from domestic corporations, all dividends from domestic and foreign corporations are excluded. Excepted are dividends on stock or foreign personal holding companies or on any stock which is not a capital asset. That adjustment is, however, subject to the limitation on the dividends received credit in the case of dividends in kind, i.e., limited to the extent of the basis of the property in the hands of the distributing corporation. Second, public utility companies which are permitted, for ordinary income tax purposes generally, to a credit for dividends paid on certain preferred stock will be denied that credit for excess profits tax purposes.

Third, a special credit allowed Western Hemisphere trade corporations for ordinary income tax purposes is not allowed. Fourth, capital gains and losses, whether long-term or short-term, are excluded. Fifth, there are also excluded such items as income and deductions arising from retirement or discharge of certain obligations outstanding for more than six months, recoveries of certain bad debts, non-taxable income from certain exempt excess output of natural gas companies, taxes paid by certain lessees and certain blocked foreign income.

Sixth, adjustments are also required with respect to operating loss deductions otherwise allowable. Seventh, if the excess profits credit is based on invested capital, then the deduction for interest otherwise allowable on so-called borrowed capital is reduced by 75 percent, because, as will be explained further, 75 percent of borrowed capital is included in determining the excess profits credit. If the excess profits credit is based on earnings, then the interest deduction is adjusted under a formula which has the effect of making the disallowance proportionate to increase in borrowed capital.

Lastly, any amounts which are paid by the Government, either as loans or grants for the purpose of encouraging exploration for, or mining of, critical strategic minerals, are excluded, as are expenditures of such funds.

The foregoing adjustments, as well as other miscellaneous adjustments, including abnormalities in amount or kind of income), must be made to arrive at excess profits net income of the taxable year. The excess profits tax rate, however, is applied to an amount called adjusted excess profits net income after deducting the excess profits credit (based either on invested capital or earnings or, in the case of public utilities, an alternative special credit) and an unused excess profits credit, if any, from either the next succeeding year or from a prior year or years not earlier than the fifth preceding year.

Under the present Act there are at least 14 different methods of computing the excess profits credit. Eleven of those methods relate to the credit on the earnings basis and two to the credit on the invested capital basis. Regulated public utilities are entitled to an alternative relief method which is based heavily, but not entirely, on invested capital. No such wide choice of alternatives was available under the World War II excess profits tax law.

Under the World War II excess profits tax, there was no minimum credit but there was a $10,000 exemption. At the present time, however, each corporation is entitled to a minimum credit of $25,000 which includes not only the excess profits credit for the year but any unused credit from another year. Thus, for example, if for any year the excess profits credit and unused credit aggregate less than $25,000, the total credit is nevertheless raised to $25,000. By removing many small businesses from tax, the minimum credit device for 1951 is estimated to confine the excess profits tax to about 80,000 corporations out of approximately 500,000 corporations in this country.

For convenience sake, the credit based on invested capital is described first. Invested capital is made up of two major elements—equity capital (including retained earnings) and 75 percent of borrowed capital. The present invested capital credit, as under the earlier law, is subject to adjustment for inadmissibles, consisting of domestic corporation stock and certain tax exempt governmental obligations.

The present law has made significant departures from the earlier excess profits law in computing such credit. First, the rates of return are more liberal than heretofore. They are now 12 percent on invested capital of $5 million or less; ten percent on over $5 million to $10 million; eight percent on over $10 million. Earlier comparable rates were eight, six and five percent. Secondly, borrowed capital is presently included at 75 percent instead of 50 percent as before. Furthermore, borrowed capital now encompasses conditional sales contracts and

Too much conservatism can stifle progress

● FREDERIC O. HESS, GAMA president, addressing New England Gas Association —"Gas appliances need to be 'upgraded' —but no effective program or steps have been agreed upon to accomplish it. Upgrading should mean better price structures, higher quality and thereby lower service cost, but it must also include better performance and continued improvements. That, in turn requires active development and research, and in that respect the gas appliance industry will have to give a better account of itself in the future.

"Too many gas appliance manufacturers undertake no research at all, they have not changed their product in a decade, and do not utilize research data developed by the A. G. A. Laboratories. It is a harsh fact that most major changes in gas appliances were forced, to keep up with advancing competition. However, manufacturers need encouragement from the public and particularly from utilities. How can [utility officials] expect the manufacturer to take risks and underwrite the cost of appliance development if [the utility organization] is unwilling to help him in his presentation and introduction to the public?

"Care and conservative caution are perfectly in order, but let us agree that too much conservatism—too much regard for 'the old'—leads to the unenviable position that 'dear old England' drifted into with relative ease. Let us all be courageously progressive in accordance with American tradition; let us be so especially in the gas business—which has lagged behind its competition, to its own detriment!"

bank loan agreements including indebtedness to a bank. Thirdly, determination of equity capital is handled differently, along substantially the following lines.

At present, the primary method of determining equity capital is popularly called the "asset approach." It involves subtracting from total book assets the total of book liabilities, both as of December 31, 1949, plus any so-called "recent loss" adjustment. Book assets are valued, except in the case of certain intangible assets, at adjusted basis for gain (i.e., cost) or March 1, 1913 value, whichever is higher, plus or minus later basis adjustments. Only assets held in good faith for business purposes may be included in determining invested capital. The recent loss adjustment is the net deficit (i.e., excess of operating losses over net income) in the period 1946-1949 or 1940-1949, whichever is the larger.

This primary method under the present law was unknown (except in a limited sense) to the earlier law. It was introduced in part to liberalize and simplify the determination of invested capital as contrasted with the "historical investment" concept of equity capital found in the World War II law.

Equity capital under the historical capital method means generally money and property previously paid in for stock or surplus at income tax bases in addition to retained earnings and profits, less distributions of capital to stockholders. Liberalization does not, however, affect all taxpayers the same way. It is not surprising, therefore, that the present law also retains the earlier historical invested capital approach which is operative only on affirmative election of taxpayer for each taxable year. Hence, a substantial amount of simplification has gone out the window with this example of legislative compromise.

Now a word about the contrasting attractiveness of the two methods. In many respects the principal difference between the two methods lies in the effect of deficits. Under the new asset approach, any net deficit occurring before either 1940 or 1946 reduces capital or surplus paid in before either date. Furthermore, a net deficit in the ten-year period 1940-1949 or in the four-year period 1946-1949 does not reduce capital or surplus whatsoever nor any profits earned before 1940 or 1946.

Under the traditional historical capital approach, a net deficit over any period of years does not reduce paid-in capital or paid-in surplus. Hence, the new method is more attractive to a taxpayer with recent losses whereas to a taxpayer with an overall net deficit, the traditional method has greater appeal. Any net deficit in the period 1946-1949, not used as a carry-back, can be utilized to reduce 1950 and 1951 excess profits net income under the old but not new approach.

New capital additions in the taxable year are treated differently under both methods. When the new approach is utilized, those additions are computed at a flat 12 percent rate. If the older approach is followed, those additions are taken in at the graduated rates, 12, ten or eight percent, depending on the amount of taxpayer's assets. Extensive computations must be made, therefore, in many instances before taxpayers can be certain which method, historical or asset, will result in the larger credit. Notwithstanding the special relief method afforded public utilities, some of them may well find the invested capital credit attractive.

Determination of the earnings credit, even aside from alternative relief provisions, under the present law is far different than under the earlier law. The earnings credit now is based on 85 percent (in lieu of the prior 95 percent rate) of base period average earnings during the four calendar years 1946-1949, inclusive.

The general rule is to compute the arithmetical average of the three best years (more specifically, the best 36 months) in the base period, any deficit year being treated as zero. The 48 months' period beginning January 1, 1946 and ending December 31, 1949 is used whether the taxpayer is on a fiscal or calendar year basis.

Unlike prior law, the present Act provides that the earnings credit may also be increased for net additions to capital during the base period. Thus, the present law provides that one-half of the net additions to capital in 1948 and 100 percent of such additions in 1949 may be used to increase the credit. Similar adjustments are made for net capital additions after the base period. Interestingly enough, net decreases in capital during the base period in no way affect the average earnings credit but, like under the prior law, decreases occurring after the base period require a reduction in the credit. The rate for additions or reductions (including retained earnings and borrowed capital) is 12 percent which ties in with a comparable adjustment made under the asset approach of invested capital heretofore discussed.

As under prior law, certain adjustments must be made to the base period earnings to put them on some parity with earnings of the taxable year. Under the earlier law, adjustments of base period earnings included disallowance of deductions attributable to casualty losses and payments of claims, awards and judgments if abnormal in incidence or in amount, as therein defined. A substantial amount of relief is potentially available under the earlier law by such adjustments.

However, under the present law such comparable adjustments would appear to be of comparatively limited value because unless the deductions of any class of the kind here discussed do not exceed five percent of the average excess profits net income during the base period, the adjustment is not made. Accordingly, comparatively few taxpayers will find any comfort in the present law in this regard.

Section 722 relief under the World War II tax was an attempt to provide discretionary relief on an individualistic basis. Out of the confusion in the administration of Section 722 has arisen the present approach of giving alternative relief in addition to the general average method. The alternative relief methods of computing average base period earnings are predicated more or less on automatic criteria. It remains to be seen, however, whether because of their number and complexity, those alternative relief methods will ultimately prove less difficult of administration than Section 722 relief.

Of the ten alternative methods of determining average base period net income, six relate to relief for abnormal situations as a substitute for the discretionary relief under Section 722. The outstanding change over the earlier law is the introduction of a new device. This is base period rates of return proclaimed by the Secretary of the Treasury for each of 64 different industry classifications in accordance with specifications in the Standard Industrial Classification Manual prepared by the Bureau of the Budget. The rate of return for each classification is determined by dividing the sum of the aggregate net income and aggregate inter- *(Continued on page 50)*

Selection of oils for high Btu gas production

By H. R. LINDEN
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● Following is an abstract of a featured paper at the 1951 A. G. A. Production and Chemical Conference in New York, May 14-16. This paper is a preview of a research bulletin to be published in the near future. The work will be a major contribution to the field of gas production, bringing together in one place for the first time the complete story on oil cracking. Announcement of the bulletin's publication will appear in a future issue of the MONTHLY.

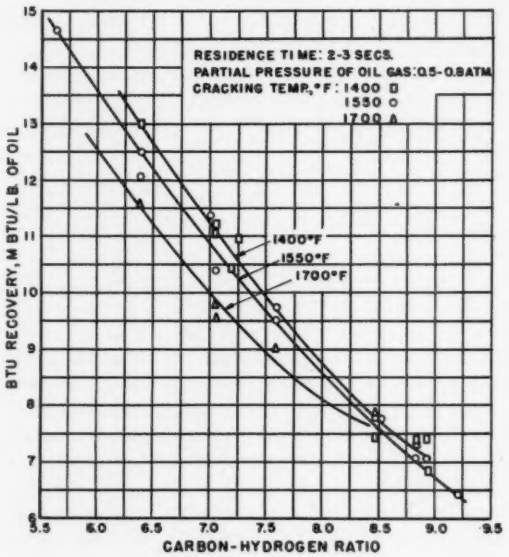

Figure 1. The effects of oil properties and cracking temperature on the recovery of Btu in the production of high Btu oil gas

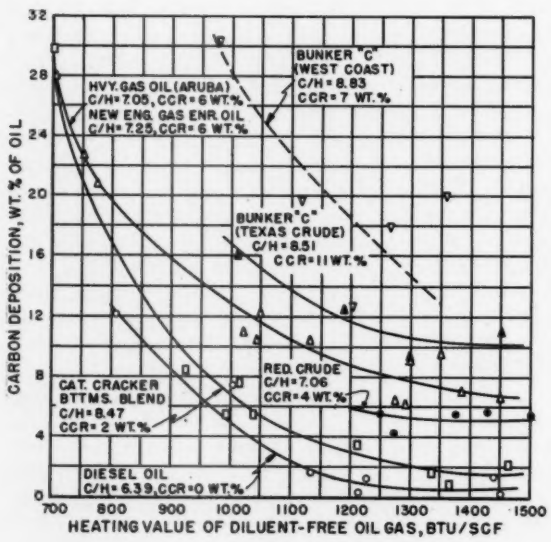

Figure 2. Variation of carbon formation with oil gas heating value for typical oils under simulated high Btu oil gas operation

a PAR activity

During the past year, as a result of widening interest in high-Btu oil gas, the study of oil gasification at the Institute of Gas Technology was directed toward the operating problems of this process. These operating problems seemed to consist in most part of (a) selection of proper oils, and (b) control of operating conditions to permit trouble-free production of oil gases of specified nature from various oils.

The primary objectives of the PAR Plan projects sponsored by the Gas Production Research Committee of the American Gas Association, "Oil Gasification," (Project CPR-23), during 1950 and "The Production and Utilization of Oil Gas," (Project PB-8), during 1951 were to study the variables affecting oil gasification and to determine the influence of these variables on the yields and characteristics of the oil gases, tars and the coke or carbon produced. A complete presentation of the results of this work through March, 1951 will be made in a Bulletin in the near future. This paper covers only the highlights of the material which will be found in the Bulletin.

In operating an oil-fired high-Btu oil gas set, labor requirements are reduced to a minimum and the operating cost is primarily dependent on the cost of the oil used for heating plus the cost of the oil used for gas-making. Therefore, reliable methods for examining and rating the oils to be used are of much greater

* This paper is based on work conducted under the sponsorship of the Gas Production Research Committee of the American Gas Association as part of the PAR Plan in the studies of "Oil Gasification" (Project CPR-23) and "Production and Utilization of Oil Gas" (Project PB-8).

importance in high-Btu oil gas operation than when producing carburetted water gas. Usually, the nature of the gas production operation determines the type of oil that is to be used: for base load or extended peak-shaving operations, the cheaper residual oils are most frequently used; for stand-by or emergency operations, the higher priced distillates. The problem of selecting oils is thus usually reduced to distinguishing between various oils in the residuum class, or between various oils in the distillate class.

In high Btu oil gas manufacture a limited number of variables will determine the quantity and composition of the diluent-free oil gas and the quantities of tar and carbon or coke produced. The physical properties of the tar as made are also largely a function of these variables which are:

1. Oil characteristics as determined by
   a. Carbon hydrogen weight (C/H) ratio
   b. Conradson carbon residue
2. Cracking temperature
3. Residence time
4. Partial pressure of oil gas leaving the cracking zone

The effects of these variables were demonstrated under controlled conditions in an empty, electrically heated 2½ inch inside diameter cracking tube of 0.115 cu. ft. free space.

A number of charts, two of which accompany this article, were used by the authors to illustrate the effect of the various factors on production of high Btu oil gas from a wide range of oils. Of particular interest was the discussion regarding selection of oils, in which the following information was pointed out:

On the basis of the interrelationships between oil properties, gasification yields and tar and gas properties which have been developed so far, the value of an oil for gas-making can be characterized by the following factors:

1. the Btu recovery in the finished make gas;
2. tar and light oil yields and quality;
3. ease of control of gas and tar quality;
4. coke or carbon production;
5. storage, pumping and general handling costs;
6. the effects of items 1, 3 and 4 on set capacity.

The Btu. recovery has the most direct and important effect on the value of a gas-making oil. The other factors listed above being equal or comparable, the oil which provides the higher Btu. recovery under the conditions required for its proper gasification, is the oil that is worth more to its user.

Generally speaking, the characteristics to avoid in residual oils are a combination of low API gravity with low viscosity, and in distillate oils, the combination of low API gravity with a low 50 percent distillation point. Although a high Conradson Carbon Residue is usually an objectionable feature, selection of residual oils on the basis of Conradson Carbon Residue alone provides no insurance of satisfactory Btu recovery and will sooner or later result in receipts of oils requiring 14-15 gallons of make oil per MCF of make gas. If the gas house gas oil listed above is assigned an index number of 100, a good non-premium distillate meeting the No. 2 fuel oil specification above would have a minimum rating of 90, a premium residuum would rate above 85 and a properly selected Bunker C fuel oil above 73.

The variation of tar properties with changes in operating conditions and oil properties are so severe that regardless of gasification efficiency and the nature of the oil gas produced, operating conditions must be selected to permit the production of a tar that can be satisfactorily handled in the plant. This requires that strict limitations be set on the range within which the operating conditions may be varied for a series of typical oils after the data presented here have been correlated with specific plant operating results.

Eastern gas operators visit Poughkeepsie

The production of a substitute gas for natural gas on the reverse flow regenerative oil gas machine was witnessed by over forty gas men during two visits to Central Hudson Gas & Electric Corporation's plant at Poughkeepsie, early in March. The machine, employed for peak shaving and emergency standby, was first put into operation in October, 1950, on gas residuum oil having a carbon content of 3.2 percent. Announcement of the development of this machine has created widespread interest in the industry. R. J. Horn, manager of gas operations for Central Hudson, presented the complete story at the A. G. A. Production and Chemical Conference in May

Industrial relations round-table

Prepared by
A. G. A. Personnel Committee,
Edited by Bernard H. Kinzer

● **Work-injury rates hit new low**—Work-injury rates in manufacturing and non-manufacturing hit a record low in 1949, according to a recent report by the United States Department of Labor's Bureau of Labor Statistics. The average injury-frequency rate for all manufacturing decreased 12.8 per cent, from 17.2 injuries per million man-hours in 1948 to 15.0 in 1949.

The rate is one of the lowest recorded in the Bureau's 24-year injury-rate series, and represents a return to the low level of the years immediately before World War II. Rates for those years were 15.1 for 1938, 14.9 for 1939, and 15.3 for 1940.

Non-manufacturing industries showed less improvement in their injury record from 1948 to 1949 than manufacturing. Of the 76 separate mining and other non-manufacturing classifications for which comparable data were available, 35 reported signficant decreases, 21 recorded increases, and 20 showed little change.

—Labor Information Bulletin 10/50

● **Re-employment rights for veterans**—One of the big upsetters of good employee relations during and after World War II was trouble over veterans' re-employment rights. The U. S. Labor Department is trying to stop trouble before it starts this time, with a recently released Question and Answer Handbook. Covers re-employment rights problems from A to Z with 314 helpful answers to all types of questions. Also contains analysis of Supreme Court decisions and text of re-employment laws for vets. Write for copies to Bureau of Veterans' Re-employment Rights, Labor Department Building, Washington, D. C. Also ask to be put on the Bureau's mailing list for Field Letters, which will keep you up to date on changes.

—Factory Management and Maintenance 12/50

● **Improved position of workers, 1941-50**—The weekly pay check of a married factory worker with two children, even after higher taxes and the postwar rise in living costs, now commands 27 percent more goods and services than it did in January, 1941, according to a recent Conference Board analysis. However, "real" weekly take-home pay is still 3 to 5 percent below World War II highs, when the average workweek was more than half a day longer than now. In addition, workers can now buy many types of goods and services which left the market during World War II.

These wage comparisons do not take account of longer paid vacations and higher positions which place factory workers in a more advantageous position than at any previous time, the Board notes. Close to full employment also makes their present bargaining position strong. In mid-1950, a single worker earned about $51 a week after taxes, as compared with net earnings of $25.41 in January, 1941, and $39.40 in January, 1945, the wartime peak.

● **Severance pay at sixty-five**—An unusual separation pay provision upon retirement is part of an agreement between the Fall River Textile Manufacturers' Association and the New Bedford Cotton Manufacturers' Association, and the Textile Workers Union, CIO. If an employee retires voluntarily at age 65, he receives a termination allowance equivalent to one week's pay for each year of service, provided he has completed fifteen or more years of service.

This item is included in "Briefs on Pensions and Other Benefits," which appears in The Management Record, National Industrial Conference Board for April.

● **Manpower reserve**—Retired employees may give you a manpower pool of accuracy and skill, particularly useful on jobs where speed is secondary. Many who retired are bored stiff and itching to get back.

The amended Social Security law gives another inducement to retirees going back to full-time work. While they do lose Social Security payments if they earn more than $50 a month, they can look forward to much higher checks from the government later on if they can get back in the groove right now.

—Labor Checklist
(Research Institute of America, Inc., 292 Madison Avenue, New York 17, N. Y.) 2/26/51

● **Background of current wages**—To provide an historical perspective to wage developments since the beginning of the defense emergency, the Department of Labor's Bureau of Labor Statistics has announced a new publication, *Wage Movements—An Analysis of 1939-49 Experience.* It is available without charge from the Regional Office, Bureau of Labor Statistics, 341 Ninth Avenue, New York, N. Y.

According to the report, weekly and hourly earnings of workers in manufacturing more than doubled over the decade ending in 1949. In terms of "real earnings"—the goods and services a worker's wage will buy—the advance was much less striking, however. Rises in prices of things bought by consumers had scaled the effect of a larger pay envelope down to a point where "real earnings" in 1949 were 40 percent above those in 1939, compared with the 135 percent increase in money wages over the same period. White-collar workers and those in most non-manufacturing industries lagged behind manufacturing workers.

● **Cost-of-living wage pact**—Plans and negotiations are explained in detail in a pamphlet recently issued by the Labor Department's Bureau of Labor Statistics, entitled Cost of Living Adjustments in Collective Bargaining. Available gratis from: Bureau of Labor Statistics, New York Regional Office, Suite 1000, 341 Ninth Avenue, New York 1, N. Y.

● **Utilities now included**—The January issue of Hours and Earnings, Industry Report, issued by the Bureau of Labor Statistics of the United States Department of Labor, includes for the first time information on hours and earnings in "Gas Utilities" and "Electric Light & Gas Utilities Combined." The averages for weekly earnings, weekly hours and hours earnings for November and December 1950 and January 1951 are given for gas and electric utilities, electric light and power utilities, gas utilities and electric light and gas utilities combined.

● **Retirement by degrees**—To soften the shock of retirement on employees, Chicago's William Wrigley Jr. Co. will retire its oldsters on an installment plan. Beginning this year, said President James C. Cox, Wrigley workers who reach the retirement age of 65, but are willing and able to keep on working, will get a month's leave of absence without pay the first year, two months the second year, and so on until they are eventually retired altogether. *—Time 4/2/51*

● **Size of labor unions**—Some 14 to 16 million workers in the United States, constituting approximately a fourth of the total labor force, currently are members of labor unions, according to estimates based upon union membership reports and claims. Structurally, these workers comprise the more than 200 existing national or international unions, which, in turn, have 70,000 or more local lodges or chapters scattered throughout the United States and Canada.

From the standpoint of membership, unions vary widely in size. Six out of a total of 207 unions surveyed by the Bureau of Labor Statistics late in 1949, claim more than a half million members each. These large unions are the AFL Carpenters and Teamsters, the CIO Automobile Workers and Steelworkers, and the independent or unaffiliated Machinists and Mine Workers. Almost half of the unions (46.9 percent) on the other hand, have from 10,000 to 100,000 members. About one out of four unions surveyed was relatively small, claiming less than 5,000 members.

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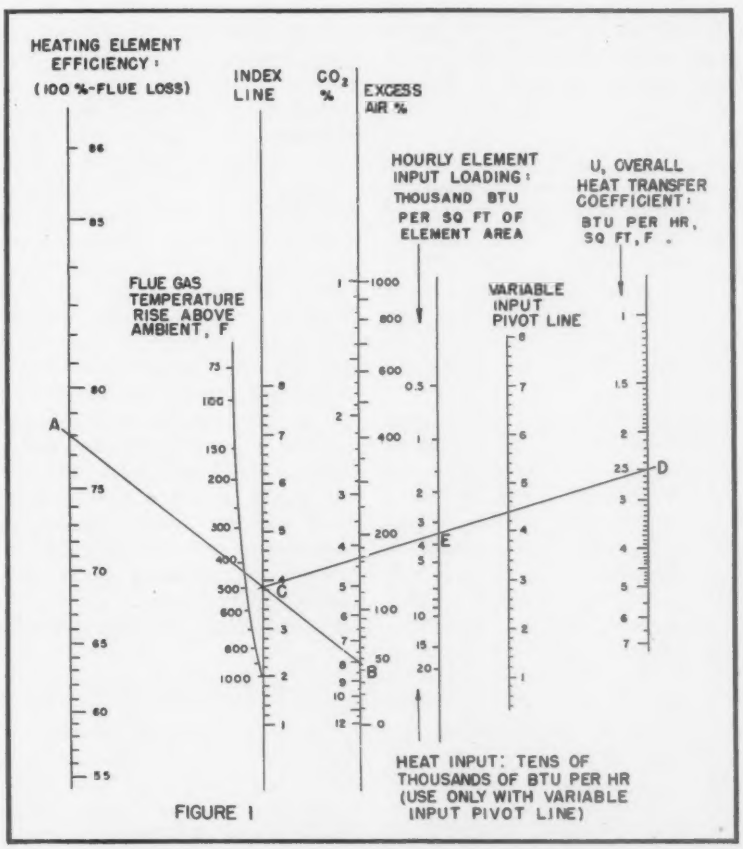
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Computation of hourly element input loading (E) from: (A) heating element efficiency; (B) CO_2; and (D) overall heat transfer coefficient

Industrial relations round-table

Prepared by
A. G. A. Personnel Committee,
Edited by Bernard H. Kinzer

● **Work-injury rates hit new low**—Work-injury rates in manufacturing and non-manufacturing hit a record low in 1949, according to a recent report by the United States Department of Labor's Bureau of Labor Statistics. The average injury-frequency rate for all manufacturing decreased 12.8 per cent, from 17.2 injuries per million man-hours in 1948 to 15.0 in 1949.

The rate is one of the lowest recorded in the Bureau's 24-year injury-rate series, and represents a return to the low level of the years immediately before World War II. Rates for those years were 15.1 for 1938, 14.9 for 1939, and 15.3 for 1940.

Non-manufacturing industries showed less improvement in their injury record from 1948 to 1949 than manufacturing. Of the 76 separate mining and other non-manufacturing classifications for which comparable data were available, 35 reported signficant decreases, 21 recorded increases, and 20 showed little change..

—Labor Information Bulletin 10/50

● **Re-employment rights for veterans**—One of the big upsetters of good employee relations during and after World War II was trouble over veterans' re-employment rights. The U. S. Labor Department is trying to stop trouble before it starts this time, with a recently released Question and Answer Handbook. Covers re-employment rights problems from A to Z with 314 helpful answers to all types of questions. Also contains analysis of Supreme Court decisions and text of re-employment laws for vets. Write for copies to Bureau of Veterans' Re-employment Rights, Labor Department Building, Washington, D. C. Also ask to be put on the Bureau's mailing list for Field Letters, which will keep you up to date on changes.

—Factory Management and Maintenance 12/50

● **Improved position of workers, 1941-50**—The weekly pay check of a married factory worker with two children, even after higher taxes and the postwar rise in living costs, now commands 27 percent more goods and services than it did in January, 1941, according to a recent Conference Board analysis. However, "real" weekly take-home pay is still 3 to 5 percent below World War II highs, when the average workweek was more than half a day longer than now. In addition, workers can now buy many types of goods and services which left the market duting World War II.

These wage comparisons do not take account of longer paid vacations and higher positions which place factory workers in a more advantageous position than at any previous time, the Board notes. Close to full employment also makes their present bargaining position strong. In mid-1950, a single worker earned about $51 a week after taxes, as compared with net earnings of $25.41 in January, 1941, and $39.40 in January, 1945, the wartime peak.

● **Severance pay at sixty-five**—An unusual separation pay provision upon retirement is part of an agreement between the Fall River Textile Manufacturers' Association and the New Bedford Cotton Manufacturers' Association, and the Textile Workers Union, CIO. If an employee retires voluntarily at age 65, he receives a termination allowance equivalent to one week's pay for each year of service, provided he has completed fifteen or more years of service.

This item is included in "Briefs on Pensions and Other Benefits," which appears in The Management Record, National Industrial Conference Board for April.

● **Manpower reserve**—Retired employees may give you a manpower pool of accuracy and skill, particularly useful on jobs where speed is secondary. Many who retired are bored stiff and itching to get back.

The amended Social Security law gives another inducement to retirees going back to full-time work. While they do lose Social Security payments if they earn more than $50 a month, they can look forward to much higher checks from the government later on if they can get back in the groove right now.

—Labor Checklist
(Research Institute of America, Inc., 292 Madison Avenue, New York 17, N. Y.) 2/26/51

● **Background of current wages**—To provide an historical perspective to wage developments since the beginning of the defense emergency, the Department of Labor's Bureau of Labor Statistics has announced a new publication, *Wage Movements—An Analysis of 1939-49 Experience.* It is available without charge from the Regional Office, Bureau of Labor Statistics, 341 Ninth Avenue, New York, N. Y.

According to the report, weekly and hourly earnings of workers in manufacturing more than doubled over the decade ending in 1949. In terms of "real earnings"—the goods and services a worker's wage will buy—the advance was much less striking, however. Rises in prices of things bought by consumers had scaled the effect of a larger pay envelope down to a point where "real earnings" in 1949 were 40 percent above those in 1939, compared with the 135 percent increase in money wages over the same period. White-collar workers and those in most non-manufacturing industries lagged behind manufacturing workers.

● **Cost-of-living wage pact**—Plans and negotiations are explained in detail in a pamphlet recently issued by the Labor Department's Bureau of Labor Statistics, entitled Cost of Living Adjustments in Collective Bargaining. Available gratis from: Bureau of Labor Statistics, New York Regional Office, Suite 1000, 341 Ninth Avenue, New York 1, N. Y.

● **Utilities now included**—The January issue of Hours and Earnings, Industry Report, issued by the Bureau of Labor Statistics of the United States Department of Labor, includes for the first time information on hours and earnings in "Gas Utilities" and "Electric Light & Gas Utilities Combined." The averages for weekly earnings, weekly hours and hours earnings for November and December 1950 and January 1951 are given for gas and electric utilities, electric light and power utilities, gas utilities and electric light and gas utilities combined.

● **Retirement by degrees**—To soften the shock of retirement on employees, Chicago's William Wrigley Jr. Co. will retire its oldsters on an installment plan. Beginning this year, said President James C. Cox, Wrigley workers who reach the retirement age of 65, but are willing and able to keep on working, will get a month's leave of absence without pay the first year, two months the second year, and so on until they are eventually retired altogether. *—Time 4/2/51*

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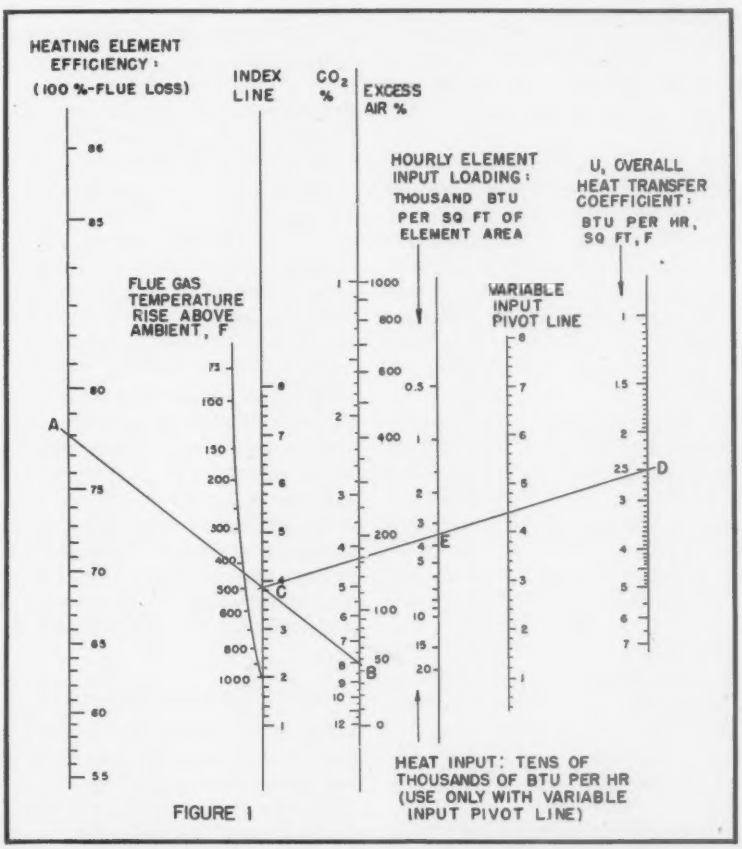
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Computation of hourly element input loading (E) from: (A) heating element efficiency; (B) CO_2; and (D) overall heat transfer coefficient

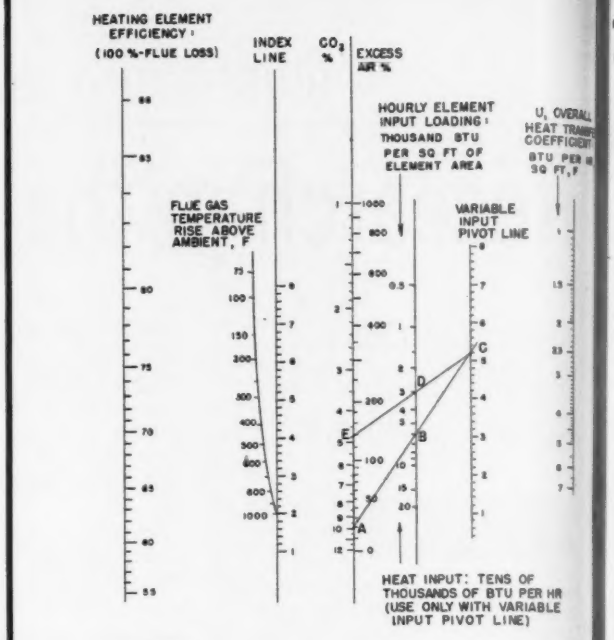
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FIGURE 2

Figure 2. Finding the change in flue gas composition under heat input reduction

Figure 3. Effect of change in CO_2 on heating element efficiency at constant heat

Figure 4. Results of a modulated heat input on a steel forced warm air furnace

It can be either the heat input per square foot of heating element, or heat input in multiples of thousands of Btu per hour, or percent of rated or maximum heat input.

The variable input pivot line units have no physical significance but the line is necessary for some venting and modulation problems. The last line, giving U, the over-all coefficient of heat transfer, is the key to the design process. The higher its value at any given gas temperature, the better is the heat transfer per square foot of the heating element.

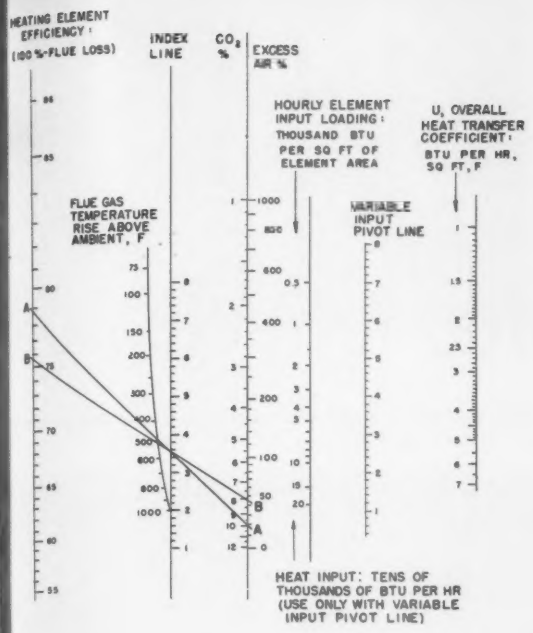
The only tool necessary for use of the chart is a straight edge. In its simplest application, the chart can be used to find the flue loss or element efficiency. For a furnace producing 8.0 percent CO_2 in gases which are 440 F hotter than room temperature, the element efficiency will be 78.0 percent, found by projecting a line through the two known points over to the efficiency line. (Fig. 1.) This means that the flue loss is 22.0 percent of the gross heat input. This application of the chart is equally good for any appliance using natural gas whose performance is in the range shown on the chart.

The furnace designer generally needs to know how large a heat exchanger must be used to transfer a given quantity of heat. Suppose that it is desired to design a furnace with the 78 percent element efficiency at 8 percent CO_2 in the flue gases just discussed. From prior information it is also known that this particular furnace will have an over-all heat transfer coefficient U of 2.5 Btu per hour per square foot of element area, per degree F temperature difference between flue gases and circulating air. The straight edge as employed initially above produces the index line point C which is 3.9. This index point is used with the over-all coefficient to locate the point E, indicating an hourly element input loading of 3,500 Btu per hour per square foot of element area. This means that a furnace of say 70,000 Btu per hour input will require 20 square feet of surface. From relatively limited tests on contemporary furnaces, it appears that 3,500 Btu per hour per square foot is a fairly typical loading for forced warm air furnaces using simple steel heat exchangers.

Predicts flue gas composition

Another prediction that the chart will make is to estimate the change in flue gas composition taking place when heat input to the furnace is changed. Suppose that a furnace operates at an input of 60,000 Btu per hour with 9.9 percent CO_2 in the flue gases, as indicated by line AB in Fig. 2. How much CO_2 will be present in flue gases at 30,000 Btu per hour? The original data locate a "pivot" point at C on the variable input pivot line which is 5.2. This point, incidentally, is related to the flow resistance or venting capacity of the furnace and does not change for any other heat input. Thus at 30,000 Btu per hour, the straight line determined by points C and D indicates 4.8 percent CO_2 at point E. As a general rule, this calculation gives satisfactory agreement for all CO_2 percentages above 4.0. This calculation has been found to apply to furnaces, ovens, space heaters, water heaters and deep-fat fryers and may logically be extended to all gas appliances with enclosed flames.

The vertical distance between the burner and the draft hood of a furnace is occasionally increased, or flue restricting baffles removed, for the purpose of increasing secondary air flow. This changes the efficiency of the furnace. It has been observed that, when this is done, there is a point on the index line which remains fixed. Thus, as shown in Fig. 3, a furnace operating at 9.9 percent CO_2 and 78.8 percent efficiency on line AA would operate at 75.6 percent efficiency on line BB if the CO_2 were reduced to 8.1 percent. This calculation is applicable only at constant heat input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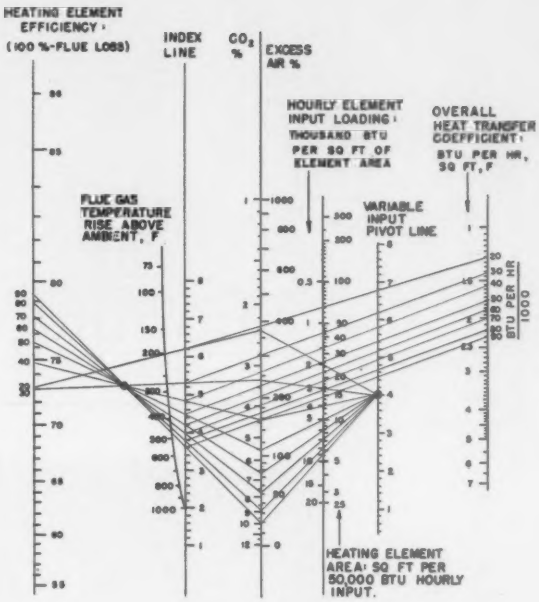
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VARIABLE INPUT PIVOT LINE
BTU PER HR 1000
HEATING ELEMENT AREA, SQ FT PER 50,000 BTU HOURLY INPUT.

FIGURE 4

rate and depends on the fact that the over-all heat transfer coefficient is not affected by small changes in excess air. Because both heat input and the over-all heat transfer coefficient remain constant, the index point must also remain constant. This calculation also applies to changes in furnace efficiency caused by variations in updrafts and downdrafts.

Application of the design chart to modulated furnace operation for a series of heat inputs for a steel forced warm air furnace is shown in Fig. 4. In these tests modulation was obtained by varying gas pressure to the burner. It can be seen that a new point of intersection exists between the efficiency and flue gas temperature lines. This intersection, which might be termed a "fixed point of modulated input" was found to exist for all furnaces tested.

Locating fixed point

To locate the fixed point of modulated input, two careful tests at different inputs, such as 100 and 60 percent of rated input, are required, observing CO_2 percent and flue gas temperature. The fixed point thus found will generally hold true for the range from 50 to 120 percent of rated heat input. The location of this point is usually in a small region, near where it was found for this particular furnace. Over on the variable input pivot line, the common intersection of CO_2 versus input lines is again evident. The change in over-all heat transfer coefficient during modulation is also indicated on the chart.

These applications of the furnace design chart indicate that it might well be considered as a paper model of a furnace for purposes of performance analysis or prediction. Thus a furnace of a given heating element and flue passage shape with constant velocity of air flow is completely defined by two points on the chart. Furthermore any furnace may be defined by two such points. It is not yet possible to predict entirely in advance where these points will be for a proposed design. Further studies of combustion chambers and their heat transfer relationship, however, may permit furnace engineers to do this, much in the same way as the flight characteristics of advance aircraft models can be predicted.

Research Bulletin 63 presents additional examples of the use of the chart as well as detailed discussion of its development and functions. Many new concepts of gas combustion chambers are likewise delineated in the study which was initiated about ten years ago as a PAR Plan Activity. Richard L. Stone of the Laboratories staff developed the alignment chart and is the author of the bulletin. The study was conducted under the Case Institute of Technology-American Gas Association Laboratories Plan for Graduate Study. Members of the committee predict that the chart and its supporting data will be extensively used by progressive gas appliance designers.

Bulletin 63 is available from the A. G. A. Laboratories, 1032 East 62nd Street, Cleveland 3, Ohio at $2.00 a copy.

American Standards issues new price list

NINETY-NINE new and revised American Standards are listed in the latest edition of the Price List of American Standards, just published by the American Standards Association, 70 East 45 St., New York 17, N. Y. Included are standard specifications, methods of test and symbols and abbreviations of safety codes, gas burning appliances and new standards for gas water heaters.

Special publications offered include "Standards—Spearhead of Industrial Mobilization," a report on standardization in national defense, in company operations, in procurement, in construction, and in safety from the proceedings of the First National Standardization Conference held last November.

The 26-page price list is available without charge from American Standards Association.

Thorough, fast and simple reporting is more important with rising costs and climbing taxes

Accounting girds for defense

George F. Mitchell, Chicago, A. G. A. first vice-president, welcomes NCEGUA delegates. Session speakers were, l. to r., H. S. Bennion, New York; Albert F. Tegen, New York; E. L. Lindseth, Cleveland; Mr. Mitchell; A. A. Cullman, New York section chairman; and J. F. Oates, Jr., Chicago

The record registration of 920 at the National Conference of Gas and Electric Utility Accountants, was evidence of the value placed on these gatherings by top level management, as a medium of keeping their companies abreast of utility accounting and numerous other phases of the industry. The conference was held April 23-25 at Sherman Hotel, Chicago.

The program covered a variety of subjects in the accounting field, ranging from record keeping to policy making. The important role the accountant of today is expected to play in keeping top level management informed about all phases of business operations in the most comprehensive, accurate and simplest way possible was in evidence everywhere. The necessity for supplying this information on the most current basis possible was also emphasized.

The comprehensive program necessitated as many as seven sessions underway at the same time, and covered such subjects as customer activities, internal auditing, materials and supplies, depreciation and general, plant, property and tax accounting. Intense interest in the meetings furnished convincing proof of the vigor with which the utility industry is attacking its accounting problems.

Work simplification and the methods of obtaining it through planned use of mechanized equipment and simplified forms and reports, proved to be topics of great interest. Exhibits of the latest in accounting and office machines and equipment helped to stimulate this interest to the point that simplification in accounting appeared to be one of the goals, if not main goal, of conference.

On the lighter side of the conference activities, were the banquet and luncheons, including the "Ladies Day" luncheon at Marshall Field and Company. A bus trip as guests of The Peoples Gas Light and Coke Company to inspect the gas industry exhibit at Jackson Park, Chicago, proved exceptionally interesting and educational. These and many other features added greatly to the enjoyment of the conference.

Acting as co-chairmen of the conference were Alan A. Cullman, Columbia Engineering Corp., A. G. A. Accounting Section chairman and Ralph H. Smith, The Cleveland Electric Illuminating Co., E.E.I. accounting division chairman. Assisting the co-chairmen were coordinators Carter E. Shields, general activities and Clifton L. Havener, customers activities; and vice-chairman Ralph F. McGlone of A. G. A.; and, coordinator Roy B. McCrorey, customers activities, Harry C. Hasbrouck, accounting director, and vice-chairman Edward L. Cassady of the E.E.I.

Following a few remarks from chairman Smith at the opening session Monday afternoon, the conference got into full swing. Col. H. S. Bennion, vice-president and managing director, E.E.I.,

Pictured at the Customer Activities Group meeting were: left to right, seated, Roy B. McCrorey, Atlanta, and C. L. Havener, coordinator, A. G. A. customer activities group, Brooklyn; standing, Russell B. Mitchell, Chicago; A. W. Merchant, Detroit and J. Gordon Ross, Rochester

Left to right, seated, P. J. Buzanga, chairman, A. G. A. Internal Auditing Committee, New York; H. R. Symes, Detroit; and J. M. Trant, Pittsburgh. Standing, R. T. Hansen, Indianapolis; C. A. Ambrister, Tulsa; G. Becher, Dayton; J. K. Laurentz, Brooklyn and T. F. Cartwright, Amarillo

Alan A. Cullman, chairman, A. G. A. Accounting Section, Cleveland, and Ralph H. Smith, chairman, E.E.I. Accounting Division, New York, presided jointly at the banquet in the Grand Ballroom of the Hotel Sherman, Chicago

delivered a message of greetings and best wishes for success of the meeting.

George F. Mitchell, first vice-president, A. G. A., and president of The Peoples Gas Light and Coke Co., Chicago, extended a warm welcome and stressed the contrast in present and past accounting methods.

"Human Relations" was the subject of an address by James F. Oates, Jr., chairman, The Peoples Gas Light and Coke Company. He said a successful employee relations program can best be built by "human understanding" between employer and employee. Oates further said the problem of employee relationships could not be solved by law. Meeting it, he asserted, was a day-by-day responsibility of management. Most employees rate security first in their desires and place it above wages, pension plans and "fringe benefits," he said.

Elmer L. Lindseth, president, The Cleveland Electric Illuminating Co., reported a need for more top-flight accounting personnel to meet the expanding needs of the utility industry. He urged the development of company programs which do not stop with mere job training but include rotation of assignments and participation in community, industrial and professional activities.

"Winning Stockholders and Influencing Friends" was the title of a talk by Albert F. Tegen, president of General Public Utilities Corporation. Mr. Tegen said that answers to a questionnaire sent to stockholders of his company and the replies of other companies conducting similar polls made it very obvious that stockholders want a simple matter of fact report of the company's operations and financial position. He recommended that the so-called "jazzed-up" financial reports with what, in most cases, he termed useless charts, graphs and pictures be discontinued.

The large attendance at general accounting sessions attested to the great interest in the subjects presented. L. C. Provencher, Detroit Edison Co., and A. B. Dilworth, Northern Natural Gas Co., presided as co-chairmen.

F. H. Crissman, Columbia Engineering Corp., and E. E. Roll, Detroit Edison Co., presented an analysis of the year 1949 annual reports of 56 gas and electric companies showing the wide differences in the make-up of these reports. It was suggested that many items could be handled in a more uniform manner without destroying the individuality of any report. In addition, Mr. Crissman spoke in favor of the so-called "jazzed-up" annual report, especially in its appeal to women stockholders.

The system followed by his company in appraising potential and current management employees for possible promotion was presented by Virgil K. Rowland, Detroit Edison Co. Slides illustrating the step by step process of these

Participating in the Materials and Supplies meeting were, left to right, seated, Pat H. Butler, Jr., Washington, D. C.; L. R. Michelsen, Chicago; and G. B. Herr, Pittsburgh. Standing, E. F. Rodgers, Pittsburgh; C. H. zurNieden, Philadelphia; O. G. Peterson, chairman, A. G. A. Materials and Supplies Committee, Ithaca; J. C. Sims, Brooklyn and R. M. Robinson, Buffalo. A panel discussion on materials control, which occupied much of the morning and all of the afternoon, was a feature

At the Taxation Accounting session, l. to r.: L. A. Diamond, New York; W. S. Alt, St. Louis; J. R. Weger, Baltimore; R. M. Dodds, chairman, A. G. A. Taxation Accounting Committee, New York; L. F. Scholley, Cleveland; C. E. Bonnett, Jr., New Orleans

H. R. Symes, chairman, E.E.I. Internal Auditing Committee, Detroit, presided jointly and gave the committee report. Speakers were: C. J. Nichols, Baltimore; W. T. Hofstetter, Chicago; Mr. Symes; P. J. Buzanga, chairman, A. G. A. Internal Auditing Committee, and joint-chairman of the meeting; and J. K. Laurentz, Brooklyn

appraisals were most enlightening and helpful in a better understanding of the entire process.

Edward M. Spencer, assistant treasurer, Detroit Edison Co., spoke on pension plan accounting and economics and the danger of using certain type financial reports in connection therewith.

Protection of only essential records from possible loss from bombing was the topic of W. E. Wilkenloh, partner, Price, Waterhouse and Co. He pointed out that the records to be safeguarded should be decided on by top level management and not department heads.

Talks on cost control, effective accounting and control of transportation costs, and revisions proposed in the uniform system of accounts presented by H. S. King, Commonwealth Services, Inc.; M. J. Doan, The Cincinnati Gas and Electric Co.; R. H. Johnson, The Brooklyn Union Gas Co.; A. R. St. Bernard, The Cleveland Electric Illuminating Co.; and O. K. Boyd, Consolidated Gas Electric Light and Power Co. of Baltimore, closed the Wednesday morning and final general accounting session.

The Customers Activities Group held a well-attended session on Tuesday morning with Roy B. McCrorey, Georgia Power Co., and Clifton L. Havener, Consolidated Edison Company of New York, Inc., presiding.

Austin W. Merchant of the Michigan Consolidated Gas Company reported on "New Solutions to Customer Accounting Problems." His committee has compiled eleven actual solutions to various customer accounting problems. One of these tested solutions was presented by J. Douglas Elliott of the Detroit Edison Company. Mr. Elliott described the use of IBM's electronic calculator in the extension of customer bills. By using these machines, operating costs have been reduced, the accuracy of the bills has been increased, and the time required for preparing bills has been shortened.

A second "new solution" was presented by L. J. Rauh of the Consolidated Gas Electric Light and Power Company of Baltimore. Mr. Rauh explained his company's installation of a billing system employing the new class 9300 reproducing punch addressograph machine. As a result, two laborious hand sequencing operations were eliminated, billing accuracy was increased, and a number of economies were affected.

A brief report by John A. Williams, Niagara Mohawk Power Corp., carried

the assurance that a recent questionnaire put out by post office authorities was not the prelude to a crack down on utility post card billing.

A subject "Collection Follow-up by Telephone" which holds much interest throughout the industry was discussed by Russell B. Mitchell, The Peoples Gas Light and Coke Company. Since the advent of television, night telephone calls are highly productive. However in order to do a good job, Mr. Mitchell pointed out "it is important that the telephone collector be thoroughly trained not only in the technical knowledge of the job but also in the psychology of handling people. Positive control of every telephone interview is always necessary."

"Good policies, procedures and personnel spell good customer relations," so stated J. Gordon Ross, Rochester Gas and Electric Corp., in his talk "Three P's in a Pod."

Tuesday noon was set aside for luncheon meetings for the Customers Activities Group. With M. J. Walsh, Consolidated Edison Company of New York, and L. R. Quad, Public Service Electric and Gas Company presiding, the customer accounting group talked shop at their luncheon session. Participation in a discussion forum led by Jim O. Hill, New England Power Service Co., and Jules C. Luchsinger, The Cincinnati Gas and Electric Co., was spirited since each contributor was eligible for a special prize. Speaker and door prize drawings were held throughout the afternoon. Prizes included a radio, briefcase, golf bag, and portable typewriter.

A number of interim reports were made on long range projects. Austin W. Merchant, Michigan Consolidated Gas Co., discussed the directory of customer accounting methods and equipment which has been compiled by his committee. The committee plans to republish this directory every three to five years to keep the information up to date.

Broad principles in the preservation and protection of records were brought out by George E. Curtis, Boston Consolidated Gas Company. He indicated that a detailed report on the subject was included in the March issue of the A. G. A. MONTHLY.

A progress report on the subject of centralized vs. decentralized customer accounting was provided by A. B. Wilson, Georgia *(Continued on page 44)*

At the speakers' table during the General Accounting Meeting were: l. to r., W. D. Sweetman, chairman, A. G. A. Accounting Employee Relations Committee, Chicago; V. K. Rowland, Detroit; A. B. Dilworth, chairman, A. G. A. General Accounting Committee, Omaha; F. H. Crissman, New York; L. C. Provencher, chairman, E.E.I. General Accounting Committee, Detroit; and Everett E. Roll, Detroit. Mr. Crissman, after analysing annual reports, suggested some standardization with retention of individuality

A Customer Activities meeting heard: A. C. Haake, Chicago; Geo. Haab, Brooklyn; G. A. Kunz, New York; J. D. Green, Ardmore, Pennsylvania; Samuel C. Grant, Ardmore, Pennsylvania; L. J. Rauh, Baltimore; Harold Bullion, Detroit; J. A. Williams, Syracuse; Paul Fry, Pittsburgh; P. E. Ewers, Detroit; and John C. Faris, St. Louis

E. D. King, Detroit, discussed capitalization of overheads, during a Plant Accounting and Property Records session. Shown are C. E. Raines, chairman, E.E.I. Plant Accounting and Records Committee, Syracuse; H. G. Eilers, chairman, A. G. A. Property Records Committee, Cincinnati; Mr. King; J. F. Locke, Detroit and K. R. Watson, Philadelphia

CARL H. LEKBERG, *CHAIRMAN* • RONALD A. MALONY, *VICE-CHAIRMAN*

Five-part course, presented by 26 lecturers, hailed as one of the most comprehensive on record

Lectures, during the 1951 Industrial Gas School, were enhanced with slide pictures

Third postwar school aids industrial men

The third postwar Industrial Gas School was held in the Hotel William Penn, Pittsburgh, during the week of May 14. One hundred and twenty-three enrollees from 27 states, four Canadian provinces and the District of Columbia, made up the student body. This group represented 55 member gas companies, 17 member manufacturing companies, and two service and research organizations.

The program, one of the most comprehensive ever offered to newcomers in the gas industry, also served as a refresher course for old-timers. Popularity of this school was evidenced by the fact that many of the students had attended one or more previous industrial or commercial schools.

Twenty-six lecturers, including industrial men from member companies, representatives of manufacturers, a consultant and member of A. G. A. staff, gave the five-part course.

The first day was devoted to fundamentals and a discussion of the principles of combustion of various fuels, led by Jack Huebler, Surface Combustion Corporation. This covered the mechanism of combustion, including physical properties of gas and the molecular velocities necessary to develop sufficient force to cause chemical reaction. If this chemical combination is heated by external means, the velocity is increased producing a high frequency of collisions until the phenomenon of ignition occurs. This is known as combustion.

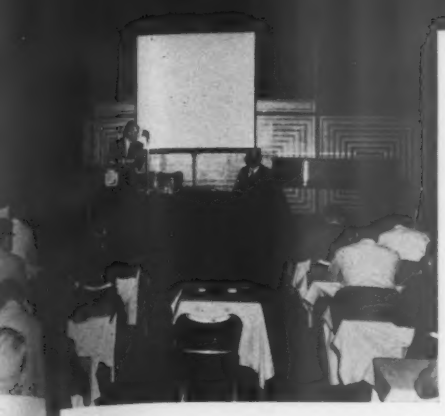
As the combustible mixture (gas and air) is further heated by the original ignition, the reaction rate is accelerated resulting in a further temperature rise until combustion is completed.

Mr. Huebler also discussed different methods of accomplishing combustion at various controlled rates within the limits of flame propagation of the particular gas involved.

In pointing out the various methods of securing combustion under controlled conditions this discussion led directly into the next lecture by H. F. Rehfeldt, The Peoples Gas Light and Coke Company. The paper was presented by A. D. Frydendall of the same company. This lecture was illustrated and the various types of burners were described for different applications. How combustible gas-air mixtures are obtained was graphically shown for atmospheric burners, premix systems involving both zero governor and forced gas-air mixtures. These in turn were broken down into detailed explanations of the two-pipe system utilizing a suction or mixing-tee mixer, low pressure proportional mixer and nozzle mixers. Then followed the one-pipe system for high pressure gas, the unit blower mixer and the central blower mixer for either partial or total premix.

Having had combustion and then burner principles explained, it was logical that heat application fundamentals should follow. Matthew H. Mawhinney, consulting engineer, presented this lecture on the practical approach to the heat balance, heat transfer and burner capacity for industrial furnaces. After going into the many factors to be considered in calculating gas requirements for a given furnace and the formulae by which these calculations can be made, Mr. Mawhinney gave a practical demonstration of how to do it. He used charts and graphs covering the metallurgical characteristics of various steels and other metals for these calculations.

Temperature measurement and control, together with protective practices, followed the lectures on basic principles and were presented by J. L. Garrison, Leeds and Northrup Co., and Claude A. Gates, Wheelco Instruments Co., respectively. Temperature measuring systems covered a description of the equipment to secure desired results on different types of heating operations within the temper-



During recesses, students clustered around the lecturers to discuss points raised in their talks. Here J. D. Russell, Cleveland, amplifies his Drying and Finishing lecture

Sales topics were presented by: C. E. Eeles, Toledo, R. S. Wenner, Columbus and "Bud" Koester, Wellesley Hills

Another lecturer, Matthew H. Mawhinney, Salem, Ohio, left, expands a sales point from his talk on Heat Application Fundamentals. Terry Hart, Nashville, right, chairman of the Sales Training Committee, made many scheduled and "pinch hitter" talks

ature range encountered in gas applications from 0° to 3,000° F.

Control equipment actuated by the foregoing temperature measuring devices were graphically shown by a series of illustrations to point out the difference between on-off two position control, proportional control with automatic reset, and proportional control with automatic reset and rate action. It was pointed out that the performance of gas-fired installations depend to a large extent on the temperature measuring and control equipment. Considerable thought should be given to determine the proper equipment to meet requirements of the job.

Entirely different equipment for ignition and combustion protection is required in industrial gas applications. Mr. Gates pointed out the safeguards that should be basic on all gas-fired industrial equipment. They should be designed to prevent the introduction of combustibles into a furnace or appliance unless suitable means are present for immediate and continuous ignition of the combustibles. If such ignition does not take place, or proceed properly, the protective device should at once shut off the flame and then re-establish the ignition system or should warn the *(Continued on page 46)*

A. D. Frydendall, Chicago, was chairman of one session and also presented a paper for "Hap" Rehfeldt, Chicago, as well as his own paper on boilers. Hale A. Clark, Detroit, sitting at right at speakers' table, was chairman during latter session

A. G. A. exhibits at restaurant show

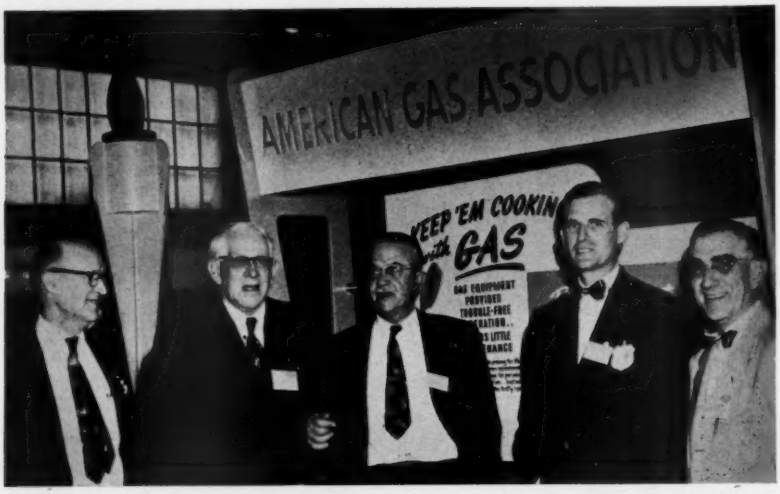
a PAR activity

FOR the second year the A. G. A. Combined Commercial Gas Exhibit in the National Restaurant Exposition, Chicago, literally "stopped the show." Spanning the full width of mile-long Navy Pier, three hundred and twenty feet of exhibits facing the two main aisles were the focal point for visitors to this gigantic trade show.

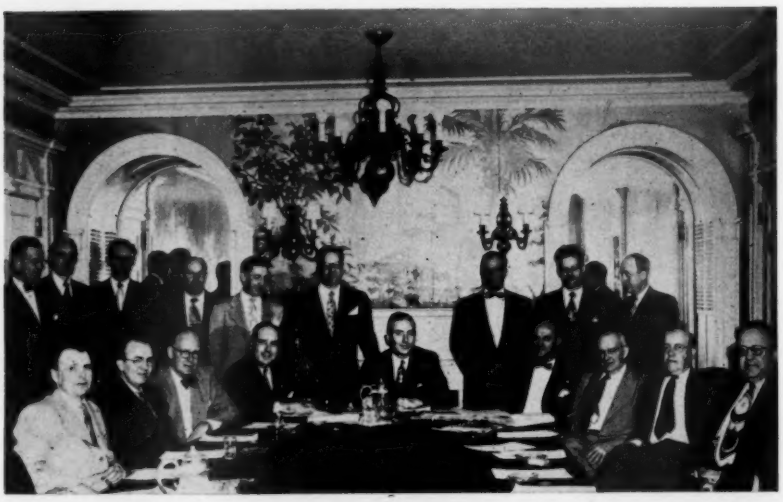
A new display motif with blue flames on pylons served as the tie-in for the twenty co-operating exhibitors whose names were illuminated at the back of their respective areas. Brilliant spotlighting made the gas exhibit one of the most attractive of the entire show.

Continuing an innovation of last year, the first day of the show was given over exclusively to dealers and their representatives. Thousands thronged the exhibits all day which was climaxed by a dinner given by the National Association of Food Equipment Manufacturers.

Throughout the balance of the week of May 7, the exhibits were crowded with delegates. In the gas area it was reported that sales were brisk and interest in equipment ran high. An industry spokesman stated that at the present time deliveries were normal but should decision be made by the government reducing the allotment of steel, production would of necessity be cut to that proportion of steel allowable. Stainless steel is no longer available and stainless steel equipment will be off the market as soon as present inventories are disposed of. There is another steel alloy which does not contain nickel that may prove to be a satisfactory substitute. Some types of equipment are already being made from this alloy. Until there is some definite announcement by Washington on steel supplies, black finished items will remain in production and will be available.



F. X. Mettenet, vice-president, The Peoples Gas Light & Coke Co., Chicago, center, stops at the A. G. A. booth to chat with friends. They are, left to right, M. A. Combs, A. G. A., New York; J. C. Pitman, Lynn, Mass.; Mr. Mettenet, J. J. Condon, Chicago, and J. T. Heilig, Newark, N. J.



Present at the meeting of the A. G. A. Food Service Equipment Committee were, seated, clockwise around the table: E. J. Mayland, Madison, Wis.; Paul Gaines, New York, Paul Inskeep, Detroit, J. V. Hall, Hammond, Ind.; E. V. Fineran, committee chairman, Washington, D. C.; M. A. Combs, New York; E. J. Horton, Youngwood, Pa.; Wm. Green, Detroit; and G. F. Leidholdt, Muncie. Standing, also clockwise around the table, were, Robert Delaney, Cincinnati; M. H. Douglas, New York; J. J. Condon, Chicago; J. M. Johnson, St. Louis; Ray G. Juergens, Cleveland; Elmer Lerch, Rochester, N. Y.; F. L. Firor, Orange, N. J.; R. E. Regan, New York and B. E. Twigg, Indianapolis

An annual highlight of the Restaurant Show is the awarding of prizes to the winners of the *Institutions* Magazine food service contest. In this fifth contest, over 82 percent of the prize winners use gas equipment. This reflects the fine cooperation of A. G. A. member companies in submitting entries. It is significant that four out of five first awards have gas equipment. In the other classifications gas equipment was in 16 out of 20 merit awards, and 17 out of 20 honor awards. A total of 37 were gas out of the 45 entries which received prizes.

It is hoped that gas companies in those communities having prize winners will promote those installations in their advertising and publicity.

Exhibiting under the Blue Flame banner were: American Stove Co., St. Louis; Anetsberger Bros. Inc., Northbrook, Ill.; The G. S. Blodgett Co. Inc., Burlington, Vt.; The Cleveland Range Co., Cleveland; Detroit-Michigan Stove Co., Detroit; Duke Mfg. Co., St. Louis; Gas Consumers Service, Chicago; Groen Mfg. Co., Chicago; B. H. Hubbert & Son, Inc., Baltimore; Kewanee Industrial Washer Corp., Kewanee, Ill.; Lyons-Alpha Products Co. Inc., New York; The Malleable Steel Range Mfg. Co., South Bend, Ind.; Market Forge Co., Everett, Mass.; Martin Oven Co., Rochester, N. Y.; J. C. Pitman & Sons, Inc., Lynn, Mass.; Robertshaw-Fulton Controls Co., Youngwood, Pa.; Ruud Mfg. Co., Pittsburgh; Savory Equipment Inc., Newark, N. J.; Sellers Engineering Co., Chicago; Vulcan-Hart Mfg. Co., New York.

Appalachian short course

THE ELEVENTH ANNUAL Appalachian Gas Measurement Short Course will be held on August 27th to 29th, 1951, at West Virginia University, Morgantown, W. Va.

The school is conducted by the University in cooperation with gas utility companies and meter manufacturers operating in the Appalachian area.

R. A. Seifert, The Cincinnati Gas and Electric Co., is chairman of the General Committee. Joseph M. Low, Hope Natural Gas Co., is chairman of the Executive Committee, and C. B. Heist, The Manufacturers Light & Heat Co., is chairman of the Program Committee of this short course.

Production called key to future

Snapped during the Sunday evening get-together of officers and committee chairmen were, Herbert C. Jones, Boston, past-chairman, G. T. Bentley, Detroit, chairman and C. L. Hulswit, vice-chairman, all of A. G. A. Gas Production Committee

Speakers and chairman of the chemical session were: Joseph D. Parent, Chicago; A. E. Sands, committee chairman, Morgantown; Henry Hakewill, Chicago; F. E. Vandaveer, Cleveland; F. C. Boston, Shreveport; and J. L. Joachim, Detroit

Others at the Sunday evening gathering were: R. Van Vliet, chairman Operating Section; J. W. Carroll, chairman, Subcommittee on the Manufacture of Higher Btu Gases; S. A. Petrino, Brooklyn; A. B. Lauderbaugh, chairman, Use and Handling of LP-Gases

History was written at the Hotel New Yorker in New York last month. Not history of immediate headline variety, but the type of history that results from perseverance and behind-the-scenes work on dozens of technical and research projects.

More than 600 gas men from the United States and Canada participated in this latest A. G. A. Production and Chemical Conference. Meeting on Monday, May 14, the delegates were reminded by H. Carl Wolf, managing director of the Association, that the production and chemical fields contain answers to many basic gas industry problems.

"Today's problems can be solved," he declared, "through more production. To obtain that production we need ingenuity, perseverance and perspiration. It is imperative, therefore, that those of you attending this conference take home all the ideas you can carry."

The conferees followed this advice by listening attentively to feature talks at the three general sessions and separate meetings of the Chemical and Gas Production Committees. In addition, specific fields were discussed at this working conference during separate luncheon conferences of seven subcommittee groups.

G. T. Bentley, Michigan Consolidated Gas Co., and chairman, A. G. A. Gas Production Committee, opened the conference on Monday.

Recent European developments in the use of oxygen in gas manufacture were reviewed by L. L. Newman, Fuels and Explosives Division, Bureau of Mines, Washington, D. C. His report, read by

The MONTHLY expresses its appreciation to the Editorial Committee of the A. G. A. Operating Section for providing special abstracts of at least four papers presented at the Production and Chemical Conference. Such material is included in the accompanying article.

CARBONIZATION AND COKE LUNCHEON CONFERENCE participants were: J. M. Spees, Kearney, alternate chairman, and H. C. King, Rochester, chairman of the luncheon conference; also taking an active part were: I. J. True, Providence, chairman, and F. D. Miller, vice-chairman, Subcommittee on Carbonization and Coke

WATER GAS LUNCHEON had G. L. Bixby, New York, seated, left, as chairman, and B. L. Peables, Pawtucket as alternate chairman. Speakers were R. B. Paquette, subcommittee chairman, and A. G. Hall, vice-chairman

LP-GAS LUNCHEON CONFERENCE speakers and chairmen were: S. W. Horsfield, committee vice-chairman; Ward Meldrum, Detroit, chairman, Safety Subcommittee; A. B. Lauderbaugh, Pittsburgh, committee chairman; H. Emerson Thomas, Westfield, N. J.; E. W. Evans, Bartlesville, Okla.; and S. C. McLaughlin, Claremont, N. H.

PLANT WASTE DISPOSAL LUNCHEON heard, seated, left to right, L. B. Bowman, Rochester, alternate chairman; W. W. Hodge, Rochester, subcommittee chairman; F. E. Vandaveer, Cleveland, luncheon chairman; and, standing, left to right, J. J. Gilbert, Philadelphia; K. E. Baird, Philadelphia; and J. E. Brewer, Philadelphia

CHEMISTRY IN THE GAS INDUSTRY LUNCHEON headliners were: L. D. Schmidt, Morgantown; W. H. Fulweiler, Philadelphia; H. J. Rose, Pittsburgh, luncheon conference chairman; A. E. Sands, Morgantown, chairman, Chemical Committee; and E. G. Hammerschmidt, Texas, chairman, Subcommittee on Planning and Programs

First meeting of the Operating Section's new Editorial Committee was held during the Production and Chemical Conference. Chairman Jesse S. Yeaw, laboratories director, Rochester Gas & Electric Corp., asked all working groups in the Section to send him news items on new developments, committee progress and publications so that they can be announced in the A. G. A. MONTHLY

H. R. Batchelder of the Bureau of Mines, paid particular attention to postwar development work on gasification in England and on the Continent.

He noted that because of high capital cost oxygen is still considered abroad as a base load proposition. Its first use now is in the large-scale production of synthesis gas for ammonia, methanol, and liquid fuels. Nevertheless, the speaker added, work in England and Germany shows that oxygen gasification is receiving substantial attention for public utility distribution.

"As the first step in the synthesis of pipeline gas, it [oxygen] will become of increasing importance to the gas industry in the United States as the number of natural gas pipelines increases and the demand continues to rise," the author stated.

Interchangeability of fuel gases was reviewed by Edwin L. Hall and E. J. Weber, A. G. A. Laboratories. This subject, Mr. Hall said, has been "one of the major problems of the gas industry since the time that the first gas-making process, other than coal gas, was considered."

Mr. Hall added that interchangeability problems vary with each company's particular circumstances.

"Interchangeability should be first expressed," he said, "as complete, where the supplemental gas is exactly the same as the base gas. Or second, it should be expressed as satisfactory, where the supplemental gas may be used without producing an amount or character of complaints which cannot be handled by the system's engineers. Third, it is suitable for emergency operation, when many desirable characteristics must be sacrificed in order to avoid complete outage of gas supplies."

Mr. Hall told his audience that "in many instances, interchangeability problems can be understood better with the aid of the so-called characteristic flame limit curves."

Continued research and testing is required, he added, to provide the industry with better gases and better appliances to use those gases. This, in turn, will mean better service to consumers.

Water and defense

The impact of the gas industry on the "economic and prosperity conditions of the Ohio Valley" were discussed at length by the next speaker, E. J. Cleary, Ohio River Valley Water Sanitation Commission. Mr. Cleary showed that the future of gas and other major industries in the Ohio Valley depends on the availability of a permanent supply of useable water.

"Water is a vitally important commodity in our defense program," he remarked. "Without good water, the health of industry, like that of individuals, is in serious jeopardy."

Mr. Cleary exhorted his audience to work closely with plant waste disposal groups. His remarks were discussed further by W. W. Hodge, Mellon Institute of Industrial Relations, chairman, A. G. A. Subcommittee on Plant Waste Disposal.

A. E. Sands, Bureau of Mines, and chairman of the A. G. A. Chemical Committee, presided at the second general session on Monday afternoon.

First presentation was a report of the Subcommittee on Tar Dehydration. Chairman Francis Glover, Boston Consolidated Gas Co., has been recalled by the Armed Services. Therefore, the report was prepared and delivered by the vice-chairman, J. G. Sweeney, The Brooklyn Union Gas Company.

Mr. Sweeney's remarks were designed "to alert the gas industry to the importance of the problem of handling high free carbon 100 percent oil gas tars."

Tar dehydration may be almost academic in regard to heavy water gas, he remarked, but not so with oil gas.

"Almost all companies which contemplate the distribution of straight natural gas will have to have provision," Mr. Sweeney declared, "for oil gas production for peak shaving and emergency use. The production of oil gas will make a considerable amount of tar that is

THE LUNCHEON ON OXYGEN AND ITS APPLICATION TO GAS MAKING was addressed and guided by: seated, l. to r., Samuel Strelzoff, New York; R. R. White, Ann Arbor, luncheon alternate chairman; H. R. Batchelder, Louisiana, Mo., luncheon chairman; standing, H. S. Turner, D. W. Beery, Pittsburgh; C. R. Downs, New York, subcommittee chairman

THE HIGH BTU GAS LUNCHEON discussions were led by: seated, left to right, R. J. Horn, Poughkeepsie; G. G. Howie, Cambridge, Mass., luncheon chairman; H. E. Ferris, Savannah, alternate chairman; B. M. Keys, Washington, D. C.; and, standing, C. J. Lueders, Lynn; W. H. Isaacs, Chicago; and Leo Bresnahan, Cambridge, Mass.

Seen talking together between meetings were: C. S. Spencer, Detroit, who spoke at the general session; R. L. Hasche, Kingsport, Tenn., who addressed the gas production meeting; and R. J. Horn, Poughkeepsie, who spoke on the same program

S. W. Horsfield, Garden City, N. Y., left, who spoke on reforming natural gas, and is vice-chairman of the Subcommittee on Use and Handling of LP-Gases, chats with H. E. Ferris, Savannah, alternate chairman of the High Btu Luncheon Conference

R. B. Paquette, Chicago, chairman, Subcommittee on Water Gas, pauses to discuss a point with C. R. Locke, Chicago, who spoke at the gas production session, and I. J. True, Providence, R. I., chairman of the Carbonization and Coke Subcommittee

tough to dehydrate, particularly if a residual or Bunker C oil is used. The more we learn now about handling this kind of tar, the less grief we will have when our turn comes to make oil gas."

A. B. Lauderbaugh, The Manufacturers Light and Heat Co., Pittsburgh, presented what he termed "an allegorical picture story on orifice metering."

He made strikingly effective use of the cartoon technique to illustrate the development and growth of orifice metering from the early Egyptians to the present day. He showed with simple clarity how orifice meters measure pressure and differences in pressure, after which one can find the mass volume of the fluid and finally arrive at the flow.

Recent progress in "Process Variables and Oil Selection for High Btu Oil Gas Production" were discussed in the next paper, a joint presentation prepared by H. R. Linden and E. S. Pettyjohn, Institute of Gas Technology, Chicago. The paper was delivered by Mr. Pettyjohn, director of IGT, and appears in this issue of the A. G. A. MONTHLY in abridged form (see page 14). The work is being conducted under the PAR Plan and will be the subject of an important research bulletin in the near future.

Another feature of the second general session was a four-part symposium on safety. J. W. Carroll, Philadelphia Electric Co., showed how "Teamwork Promotes Safety" in his company.

He noted that the ability or inability of foremen and supervisors to instill safety consciousness in their men can spell the success or failure of a company program.

Requirements of a good safety program vary with each company. However, Forrest D. Miller, Philadelphia Coke Co., showed that there are certain basic items to be included. Among these items are dramatic teaching and showmanship; proper instruction of supervisors; and a strict program on cleanliness. He also advised the use of safety rule books, careful plant inspections, and the efforts and work of a thoroughly competent safety director.

Safety and personnel relations center in the foreman. This fact was forcefully brought home in twin skits staged by members of the Accident Prevention Committee. Chairman W. H. Adams acted as moderator, while four other members enacted the "before" and "after" of good safety practices.

As the first scene opened, D. R. Ed-

wards, The Columbia Gas System, Inc., the foreman of both skits, was sitting, feet propped up on his desk, reading the racing form. (Backstage gossip was that he had his script pasted on successive pages of the form; but considering that the whole cast had been gathered not more than three hours before, this was clever devising.)

As successive workmen came in with grievances or to request help, the foreman brusquely brushed them off. A succession of telephone calls received the same treatment. (An amusing sidelight of these telephone calls was the mistake of the Hotel New Yorker operator in connecting the live stage phone to the "extension 50" that the foreman had requested. In true stage tradition, Mr. Edwards went through his lines with a straight face while the puzzled voice on the other end of the line tried to find what he was driving at.)

The second act depicted the important role the foreman can play in furthering safety and employee relations programs.

Copies of the skits are available from W. H. Adams, The Manufacturers Light and Heat Co., Pittsburgh.

Mechanical hazards in gas plants were analyzed by the next speaker, G. L. Calderwood, Rochester Gas and Electric Corporation. He emphasized that safety should be considered an element in plant design. Accidents can also be reduced, Mr. Calderwood said, by frequent inspections, by prompt remedy of unsafe conditions, by proper employee selection and training, and by the constant cultivation of safe attitudes in the mind of each employee.

Parallel chemical and gas production sessions were held on Tuesday morning. The first mass spectrometer in the gas industry was placed in operation at Institute of Gas Technology in Chicago in September 1950, according to Henry Hakewill and M. C. Miyaji of IGT. The authors devoted their paper to a description of apparatus and methods used at IGT for volumetric gas analysis. They called the result a "reasonably accurate determination of the gas composition of any utility fuel gas with sufficient accuracy to check both the heating value and specific gravity and to permit precise control of operating variables within the plant."

There is apparent need for additional comparisons between mass spectrometer and volumetric analyses, they added. Nevertheless, "the accuracy and reproducibility demonstrated in these tests and with this equipment establish a new high level of performance for volumetric gas analysis."

F. E. Vandaveer, The East Ohio Gas Co., Cleveland, presented some interesting details on a natural gas purification and gasoline plant that has been in successful operation for 12 years.

"Practically all odors have been eliminated from the plant and surrounding area," he said, "by collecting and burning all drip oil, revivifying iron oxide in place, and by collecting and burning all hydrogen sulfide and mercaptan gases."

Substitution of natural gas for coke oven gas may mean about a ten percent loss in the annual coke production of merchant and gas utility companies and a two percent loss in total U. S. coke capacity during the next five years. This estimate was made in Bureau of Mines Information Circular 7579 by J. A. DeCarlo and J. A. Corgan. Material in this paper was outlined briefly by Chairman Sands of the A. G. A. Chemical Committee.

Two types of equipment commonly used to measure gas law deviation factors were compared in the next presentation. J. D. Parent, Institute of Gas Technology, substituted for the author, O. T. Bloomer, also from IGT. Deviations from the ideal gas law of two typical natural gases and pure nitrogen were measured over the pressure range 0-1000 psia for temperatures of 48.7 and 80.1° F with both the Bean and Burnett apparatus. The author noted that the resultant data are in close agreement.

"Selection of the type of equipment to be used can, therefore, be based on the cost, the speed, and the simplicity of operation," he concluded.

J. L. Joachim, Michigan Consolidated Gas Co., Detroit, produced details on odorization experiences in Detroit.

". . . there is room for improvement in the com- *(Continued on page 32)*

THE FOREMAN: SAFETY CHANNEL OR BOTTLENECK?

The vital importance of the foreman in a safety program was brought out in a two-part playlet presented by members of the Accident Prevention Committee. Actors were: upper, left to right, F. J. Silas, Brooklyn; W. H. Adams, chairman of the committee and narrator of the plot; and, lower photo, left to right, A. S. Hancock, Mineola, chairman, Subcommittee on Foreman's Reminders; and D. R. Edwards, New York, who played both the hard-boiled and the considerate foreman in safety skit

mercial odorants on the market today," he stated, "but regardless of their limitations, they serve a useful purpose. Augmented by available equipment and a well considered program of evaluation, they will provide adequate protection without undue disturbance to the public."

Reduction of water vapor content in natural gas is necessary to prevent formation of solid hydrocarbon hydrates in high pressure transmission lines. F. C. Boston, United Gas Corp., Shreveport, La., described the use of low temperature well-head units to produce marketable natural gas.

"The effect of refrigerating the gas and of the accompanying hydrocarbon fractionation occurring in the hydrate separator is to decrease the gasoline vapor content of the product gas," Mr. Boston disclosed. "This content is reduced to a value much below that obtainable when using a conventional separator in which the gas temperatures are kept above the hydrate point with gas heaters."

"The range of application can be considerably extended," he added, "and gases having compositions similar to residue gas from gasoline absorption plants can be obtained by expanding the gas through a work-producing mechanism, such as a turbine."

J. L. Turnan, Worcester Gas Light Co., Worcester, Mass., opened the Gas Production Committee session on Tuesday. He discussed minimum facilities and procedures required for unloading propane and butane. It is vitally important, he declared, that employees be thoroughly familiar with properties of the gases used and thoroughly trained in their operation and distribution.

"Review of Literature on Coal Expansion" by O. P. Brysch and W. E. Ball, IGT, was the next event on the program. Growth of the project was outlined in introductory remarks by A. C. Sedlachek, Eastern Gas and Fuel Associates, Boston. Final result of the work, Mr. Sedlachek said, will be an extensive and complete literature summary of great value to plant operators.

Mr. Ball presented a brief review of the literature survey to date, noting that the work is sponsored by the A. G. A. Gas Production Research Committee as a PAR Activity. A preliminary report will be made available as a research bulletin in the near future.

Recent experience of The Peoples Gas Light and Coke Co., Chicago on "The Underfiring of Coke Ovens with Unusual Gases" was analyzed by Charles R. Locke of that company.

"We have found," he stated, "that mixtures of natural gas and air, in the range of 520 to 560 Btu, have given us a satisfactory and efficient underfiring fuel for our ovens. We have been able to produce good coke at various coking times and due to its flexibility in mixtures with coke oven gas have been able to take care of many changes in demand for coke oven gas sendout."

A novel reverse flow regenerative machine employed for peak shaving and emergency standby at Central Hudson Gas and Electric Corp., Poughkeepsie, N. Y., was described by R. J. Horn.

This machine was first put into operation in October 1950 on gas residuum oil having a carbon content of 3.2 percent. During most of the remainder of the winter, it was operated on residuum oil, although test runs were made with other oils. Mr. Horn summarized plant operating data.

Evolution and operation of the Koppers-Hasche furnace for reforming hydrocarbon gases and vapors was described by R. Leonard Hasche, Tennessee Eastman Co., Kingsport, Tennessee. Mr. Hasche gave his audience details of latest operations at Watauga Valley Gas Co., Johnson City, Tennessee. A radically different type of regenerative furnace was built at that location, employing the double regenerative feature and a new type of checker made of high grade alumina refractory. The furnace had a maximum capacity of 120,000 cubic feet of reformed gas a day.

He concluded that the Hasche reformer has the following advantages: (1) low investment cost; (2) low operating cost; (3) standby and peak load use; (4) flexibility and ease of control; (5) continuity; (6) high efficiency and, (7) purity of the reformed gas.

Report of the Builders' Subcommittee, L. E. Osmer, The Girdler Corp., Louisville, Ky., chairman, opened the final general session on Wednesday morning.

"Acceptance Testing of LP-Gas for City Gas Plants" was detailed by C. S. Spencer, Michigan Consolidated Gas Company.

"Proper inspection is especially important," he said, "if more than one type of LP-gas is received with the possibility of mixing in storage."

He described procedures for sampling, determining specific gravity, vapor pressure, moisture, and hydrogen sulfide. Details of these methods can be obtained from the standards of Natural Gasoline Association of America, Mr. Spencer concluded.

A broad picture of gas industry research activities under the A. G. A. PAR Plan was presented by T. L. Robey, secretary, A. G. A. General Research Planning Committee. His talk covered the Association's current research program in which there are "some 44 projects covering the gas business from the well bottom to the draft in the customer's chimney."

Keen interest was expressed in the next event on the program—a five-part symposium on new experience in reforming natural gas.

S. W. Horsfield, Long Island Lighting Co., Garden City, N. Y., was lead-off man. His paper described the catalytic cracking process used in a vertical tube-type cracking unit for reforming natural gas to produce a 540 Btu gas interchangeable with carburetted water gas. The author described a three-unit complete plant installed by Long Island Lighting Company for the specific purpose of reforming natural gas at Glenwood Landing, New York.

Mr. Horsfield showed that this type of plant is well suited for the purpose intended. This is particularly true, he said, when conditions

(Continued on page 42)

Consumers' premises group in Memphis

TWO LIVELY luncheon conferences of the Work on Consumers' Premises Subcommittee were held during the A. G. A. Distribution, Motor Vehicles and Corrosion Conference in Memphis this April.

John G. White, The Peoples Gas Light & Coke Co., Chicago, presided at the first meeting, substituting for Chairman M. M. Pears, Equitable Gas Co., Pittsburgh, who was unable to attend, First speaker was E. F. Hart, Boston Consolidated Gas Co., on the subject "Safe Practices on Consumers' Premises." Consensus of opinion during the ensuing discussion was that there is room for considerable improvement in this field.

Proper servicing of commercial gas appliances was covered by R. G. Juergens, The East Ohio Gas Co., Cleveland. He suggested the following minimum requirements: (1) Brush out air mixers and venturi tubes; (2) drill out clogged burner heads; (3) clean and adjust pilots; (4) calibrate temperature controls; (5) properly adjust all burners; (6) tighten door springs; (7) check flue action; (8) advise on proper maintenance; (9) check meter capacity and, (10) check house lines.

W. W. Gillis, Jr., Washington Gas Light Co., and J. Joachim, Michigan Consolidated Gas Co., explained a test of a survey made on pressure variation and limits to be tolerated on appliances. During the discussion period, K. R. Knapp, assistant director, A. G. A. Laboratories, gave a detailed explanation of the Laboratories practices and tests.

Ben Gault, Robertshaw-Fulton Controls Co., Youngwood, Pa., démonstrated the various controls made by his company. He added that the firm would be glad to send a mobile truck and instructors to describe the functions of controls to field personnel of utilities.

A major feature of the second session was a discussion "Balancing Summer and Winter Manpower Requirements" by C. S. Hazel, The Philadelphia Gas Works Company. G. B. Johnson, Minneapolis Gas Co., and subcommittee vice-chairman, presided at the session.

Major participants in the discussion included: W. W. Gillis, Jr.; J. W. McIntyre, Michigan Consolidated Gas Co.; John H. Dennis, Long Island Lighting Co., and George B. Johnson.

Company experience was reported during the discussion. In one company, all top grade servicemen qualify for house heating work. Another company gives free service, but does not do inspection or major repairs. Still another company charges for service. A fourth company makes no charge for trouble shooting.

A talk on safety by G.A.S. Cooper, Public Service Electric & Gas Co., Newark, N. J., emphasized that each man at the meeting should consider himself a safety engineer.

Company owned radio vs. mobile telephone service was discussed by William M. Hawkins, Laclede Gas Co., St. Louis. Most companies present owned their own equipment.

Next feature was a discussion of customer reaction to service by John J. Gagen, Consolidated Edison Co. of New York, Inc.; Elden H. Davis, The Ohio Fuel Gas Co., and J. Joachim, Michigan Consolidated Gas Company.

Final event was a talk by H. A. Robinson, The Dow Chemical Co., Midland, Mich., on use of magnesium anode rods in water heater tanks. He explained the use of the magnesium rod and added that it will not necessarily give the same protection in different types of water. He also discussed the possibility of affording too much protection in certain cases.

Peppy, fast-paced program, loaded with valuable information is promised for Asbury Park gathering

Timely program—N.Y.-N.J. conference

Modestly described by those making its arrangements, as "literally one of the greatest shows on earth," the New York-New Jersey Regional Gas Sales Conference will have its stimulating run at the Hotel Berkeley-Carteret, Asbury Park, N. J., June 18 and 19. The program will be devoted to residential gas sales, advertising and promotion.

A hard-hitting, fast-moving program of top-level speakers has been scheduled for the conference. The first morning session, under the chairmanship of W. D. Williams, Public Service Electric & Gas Co., will hear H. Leigh Whitelaw, managing director, GAMA, report on that organization's activities. He will be followed by a presentation on dealer relations defining the function of the dealer and setting forth what must be done by manufacturers and distributors to affect closer liaison with this group. The presentation, by Harold Zeamer, The Philadelphia Gas Works Co., will bear the title, "What Price Dealer Relations."

Third item on the program will be one of the two unusual highlights of this year's conference: A gas laundry dryer skit, "Rain or Shine," will be staged by Edward J. Cantwell, plan captain, Harold F. Coleman, assistant plan captain, Andrew J. Tomanek, staff assistant and Gladys Grossarth, all of the new business department of The Brooklyn Union Gas Co. The skit has already won highly favorable comment throughout the country.

A. B. Ritzenthaler, vice-president, Tappan Stove Co., will conclude the morning session with a presentation on gas cooking, "What About the Gas Cooking Load?"

The second session, at 10 A.M., June 19, will be under the chairmanship of Robert N. Laux, Kings County Lighting Co. This morning's program will open with a detailing of A. G. A. and gas industry promotions and a review of the PAR program, by H. V. Potter, coordinator of promotion, A. G. A.

The second of the two unusual items on the conference program—a panel of experts taking up sales questions relating to natural gas—will be next in order of business. Moderator of the panel will be Christy Payne, Jr., The Peoples Natural Gas Co. Other members of the panel will be R. D. McNeice, Public Service Electric & Gas Co., Roger Gordon, Washington Gas Light Co. and Vernon Stanton, South Jersey Gas Co.

The session will close with an address by C. T. Burg, vice-president, Iron Fireman Manufacturing Co., entitled "The Three Bogeymen."

Sessions will be held only in the morning hours. A dinner party will be held the evening of the first day of the conference, and a banquet on the evening of the second day. The arrangement committee is urging all members to bring their wives. There's never any question, they say, about the Jersey Coast weather, because it is always so good during off-seasons.

W. D. Williams, Public Service Electric & Gas Co., left, is to be chairman of the opening day of the Conference. Robert N. Laux, Kings County Lighting Co., will act in similar capacity for the second day

Rocky Mountain show

A GAS RANGE style show and discussion of all-year air conditioning featured the inauguration of the 1951 Spring Festival Promotion of the Rocky Mountain Gas Association, Denver, April 10. The afternoon conference, under the chairmanship of S. J. Tinsley, Colorado A. G. A. gas range manager, was devoted to discussion of means of capitalizing on the national A. G. A. promotional campaign on CP gas ranges and all-year gas air conditioning.

The 1951 models of CP gas ranges of 11 manufacturers were displayed during the evening banquet session. Guests were given the Gas Appliance Manufacturers Association publication, "Recipe for Cooking Perfection and Consumer Protection."

Industry news

A.S.A. pressure piping safety code published

NEW AND IMPORTANT safety requirements for the various piping systems throughout the nation that carry liquids or gases at high pressure are contained in the 1951 edition of the *American Standard Code for Pressure Piping* that has just been published.

The new edition of the Code was prepared by a widely representative committee, sponsored by the American Society of Mechanical Engineers under American Standards Association procedures. It establishes minimum safety requirements for various piping systems ranging from tiny systems operating delicate instruments to the huge pipe lines carrying gas and oil for thousands of miles across the country. The original Code was published in 1935 and also was adopted as an American Standard.

Standardization, the official magazine of the American Standards Association, states the revised Standard is intended as a guide in selecting materials that will safely withstand the pressures and temperatures under which various piping systems are operated, and in testing elements that make up a piping system as well as the completed system itself.

"In 1942 when the edition preceding the 1951 edition of the Code for Pressure Piping was published," the magazine points out, "the largest heavy-duty cross-country gas pipe lines were 20 to 24 inches in diameter. Since that time the Federal Power Commission has issued certificates for nearly 34,000 miles of new long distance lines extending from southwestern producing fields to eastern consuming areas. Several of the recently installed heavy-duty lines were 30 inches in diameter, and a 34-inch line is now under construction.

"Steady improvement in materials has made it possible to increase pipe diameters for a given wall thickness without a corresponding decrease in gas pressures. Not only is the greatly enlarged volume of gas transported an economically significant item, but it is estimated that the now more efficient use of steel makes it possible to save as much as 100,000 tons of steel on one cross-country pipe line alone.

"The Code for Pressure Piping has played an important role in the extension of gas as an economical fuel to large population centers," *Standardization* says.

"An experience in Michigan in 1949 offers an example. Country property owners protested the installation of a gas pipe line on the ground that it would be unsafe. An investigation by the State Public Utility Commission, conducted under the direction of members of the University of Michigan faculty, put the pipe line through severe tests and proved to the satisfaction of the Commission that pipe meeting the requirements of the Code would be safe. The Michigan Commission is only one of the regulatory groups that has ordered that gas pipe lines follow the requirements of the Code for Pressure Piping."

The gas industry is especially interested in the Code because it provides realistic minimum construction requirements and offers the basis for a program of self-regulation in matters of safety. Requirements outlined in the section of the Code covering gas and air piping not only apply to transcontinental gas transportation systems but to distribution systems in cities, and to gas and air piping systems in compressing stations and gas manufacturing plants as well.

Development of new specifications for materials has been recognized by eliminating some of those formerly in effect and substituting new American Society for Testing Materials and American Petroleum Institute specifications now in general use. New requirements have been included for pipe (except cast iron pipe) in gas and air compressing station piping systems. These will result in thicker pipe walls, other factors being equal, than previously required in compressing station piping.

Government opens security guidance program

IN AN EFFORT to guard technical information, the U. S. Department of Commerce has established a program for the voluntary protection of such facts, researches and data as would, if disclosed, weaken the total position of the United States. The program is primarily concerned with unclassified technical information and industrial and commercial information of a technological nature. Within the scope of the program are advanced industrial developments, production "know-how" and technology, strategic equipment and special installations.

Anyone having in his possession such information and questioning whether it should be disclosed is invited to contact the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. Requests for advice should, when possible, be accompanied with pertinent manuscripts, plans or documents. Enclosures will be returned with the Government's comment. It is then entirely up to the individual whether or not the Government's advice is followed.

P.U.A.A. meets, discusses ad media, makes awards

THE ADVERTISING of gas, electric and water services received extensive study during the May 17-19 annual convention of the Public Utilities Advertising Association, Hotel New Yorker, New York, N. Y. More than 300 members and guests attended the conference. William B. Hewson, assistant vice-president of The Brooklyn Union Gas Co., and retiring president of P.U.A.A. presided at the opening session and at the business meeting. He also delivered the report of the Committee on Advertising Cost Survey, of which he is chairman.

John E. Canfield, public information director of Wisconsin Power & Light Co., was elected president. Others elected were Paul L. Penfield, of Detroit Edison Co., first vice-president; Walter G. Heren of Union Electric Co. of Missouri, second vice-president; C. Fred Westin, of Public Service Electric & Gas Co. of New Jersey, third vice-president; George G. Hanel, of Connecticut Light & Power Co., secretary, and Mead Schenck, of Interstate Power Co., Dubuque, Iowa, treasurer.

Some of the sessions were devoted to public relations, to research as an advertising guide, to improving stockholder relations and to humanizing public utilities. Among speakers at the "Hell Box Session," were John S. Spaulding, Southern California Gas Co., and Howard A. Praeger, The Brooklyn Union Gas Co., who debated the merits of using radio in a TV dominated market. During the same session, Raymond W. Fenton, The Peoples Gas Light & Coke Co., argued that utilities are spending enough money on art work, while E. V. Christensen, Wisconsin Public Service Corp., contended that they were not. Gussie O. Jones, Atlanta Gas Light Co., led a discussion on newspaper space rates.

The Friday luncheon session was addressed by D. A. Hulcy, president of A. G. A. and of Lone Star Gas Co., and recently elected president of the U. S. Chamber of Commerce. Mr. Hulcy directed attention to the phenomenal growth of the gas industry.

C. Fred Westin, Public Service Electric & Gas Co., and chairman of the Better Copy Contest Committee, delivered the report of that committee. A printed brochure, with reproductions of the winning advertising and display entries, is available from Mr. Westin.

Among the first place award winners announced by Mr. Westin were: Boston Consolidated Gas Co., for an advertisement selling gas merchandise; British Columbia Electric Railway, for material sent to farm, commercial or industrial customers; The Brooklyn Union Gas Co., for an advertisement selling gas merchandise; and The Cincinnati Gas & Electric Co., for complete programs, and for material sent to residential customers. *(See page 35)*

Other first awards went to: Connecticut Light & Power Co., for special literature sent to employees; The East Ohio Gas Co., for television; Iowa Power & Light Co., for annual report to stockholders; and Laclede Gas Co., for an advertisement promoting the use of gas, and for car and bus cards and truck posters.

First awards were also made to: New Orleans Public Service, Inc., for material used in dealer promotion on any subject; New York State Electric and Gas Corp., for material used in dealer promotion on any subject; Pacific Gas & Electric Co., for car and bus cards and truck posters; and The Peoples Gas Light & Coke Co., for employee magazines.

Other top winners were: The Peoples Natural Gas Co., for window displays; Philadelphia Gas Works Co., for window display; Portland Gas & Coke Co., for advertisement promoting the use of gas, for special literature sent to employees, and for car and bus cards and truck posters.

Similarly, first awards were made to: Public Service Company of Northern Illinois, for material sent to farm, commercial or industrial customers; St. Joseph Light & Power Co., for an advertisement selling gas merchandise; and Southern Counties Gas Co., for an advertisement promoting the use of gas.

Other first awards went to: Texas Gas Transmission Corp., for motion pictures; Wisconsin Public Service Corp., for material sent to residential customers; and Union Electric Co. of Missouri, for advertisements on a public relations subject, for employee newspapers, and for outdoor advertising.

Among the gas and combination companies, those who won the most first awards were The Cincinnati Gas & Electric Co., Portland Gas & Coke Co. and Union Electric Co. of Missouri, each with three first awards to its credit. The latter firm also chalked up two second award winners, while the other two each won a second and a third.

Fischer-Tropsch Summary

THE Fischer-Tropsch and Related Synthesis" is the title of a 610 page, cloth bound book just published by John Wiley & Sons, 440 Fourth Avenue, New York 16, N. Y. $9. This book is a detailed summary, documented and critically analyzed, of certain information gathered from German documents and technologists after the Nazi defeat.

The development of the Fischer-Tropsch process—the synthesis of aliphatic organic compounds, chiefly hydro-carbons and alcohols, by the catalytic hydrogenation of carbon monoxide—is critically reviewed. The reader is also presented with a valuable review of fundamental and applied catalysis and is introduced to the "oxo" and isoparaffin syntheses. This critical analysis of data was amassed from the study of actual plant processes and from documents not generally available.

The authors are members of the staff of the Research and Development Branch, Office of Synthetic Liquid Fuels, U. S. Bureau of Mines. They are: Henry H. Storch, Ph.D., chief, Research and Development Branch; Norma Golumbic, M.S., technical assistant, and Robert B. Anderson, Ph.D., physical chemist.

Nashville float promotes gas

And on second glance you'll notice that this float also carries some gas ranges, a gas water heater and some well-stated advice concerning cleanliness. The float was entered by Nashville Gas & Heating Co. in that city's Junior Chamber of Commerce Clean-Up, Paint-Up and Fix-Up Parade

East Ohio wins top utility award for TV program

THE EAST OHIO GAS CO., Cleveland, has received first award honors for the best television broadcasts produced last year by any U. S. public utility.

The award was announced by the Better Copy Contest Committee of the Public Utilities Advertising Association at its annual convention in New York.

East Ohio's five-day-a-week TV feature, "The Woman's Window," originating in the WEWS studios in Cleveland, was entered in the Better Copy Contest of the PUAA by Ketchum, MacLeod & Grove, Inc., advertising agency for the gas company and producer of the 30-minute women's show. Ethel Jackson, home economist whose recipe demonstrations and household hints are currently accounting for an incoming mail count of 3,000 weekly, is in charge of the program.

The award was accepted for East Ohio by Harold E. Eckes, advertising manager of the company, which initiated the afternoon program in August 1949.

The Better Copy Awards are recognized as a part of the oldest contest of its type in the advertising profession.

First-place award for best television program produced by a U. S. public utility obviously pleases Jack Hartley (left), program director of Station WEWS; Ethel Jackson (center), star of "The Women's Window" show, and Harold E. Eckes (right), advertising manager at East Ohio Gas Company

Broad program for Wisconsin technical group

THE Technical Division of the Gas Section, Wisconsin Utilities Association, has set up a comprehensive program to be carried out under the direction of John C. Bolender, section chairman. Committee personnel to direct the program are headed by an advisory board of which G. G. Ellerbrock is chairman.

The distribution committee under W. J. O'Donnell, chairman, will study the following suggestions: cathodic protection of mains and services; pipe wrapping; joint wrapping, testing; report on experience of reduction of leaks per mile; means of stimulating interest in the need of cathodic protection. Other subjects include: load and pressure surveys, minimum and maximum system pressures; pressure regulation, remote control, telemetering; main conditioning for leak control, cleaning mains, dust filters; maintenance schedules for valves and regulators; tapping and connecting to high pressure steel mains; emergency repair tools and methods; two-stage pressure reduction for services, location and methods of installation. Also types and use of non-sparking tools; reconditioning of existing lines; labor-saving tools, equipment and methods; construction of services into houses with and without basements; use of cast iron pipe for pressures up to 100 pounds; automatic loading and boosting type regulators; needs for and method of making load and pressure surveys, and meter corrections for industrial installations.

The Customers' Service Premises group under V. J. Schiebel, chairman, will investigate the following subjects: use of leak detectors in service work; job training; five-year inspection of customer appliances as required by the Public Service commission; reasons for, advantages to customer, cost to utility, and the amount of work done at time of inspection. Also appliance performance with standby gases used during past winter season; chimney linings, advantages and materials to be used; service charges; appliance safety devices; dust and oil filters; necessity of using ground connection to eliminate arc when disconnecting meters; means of reducing cost of service work; follow-up inspection and work on dealer installations; mobile communication systems; causes, method of investigation and information to customer on high bill complaints.

Other committees and subjects are as follows: meter and service regulator, Robert Danforth, chairman. Investigation will include: effect of natural gas on meters and regulators, records kept and experience; necessity of an accelerated meter repair program; pressure elevation procedures, and Diaphragm types, synthetic and leather.

Production Committee under Frank Colbert, Chairman, will study: necessity of capacity of standby to meet load conditions; types of equipment manual and automatic; holders and their maintenance; experiences with oil gas production; gas conditioning for odor, dust control and leak mitigation.

A new group known as the emergency aid committee, E. C. Brenner, chairman, will work with municipal, county, state and federal authorities on their civil defense and disaster programs.

Initial meetings of these committees were held in April.

Editors shown latest gas range advances

HOW FAR the gas industry has gone to meet the expectations of the homemaker in gas ranges was demonstrated at an editors' "CP" round-table conference held May 18 in the Waldorf-Astoria Hotel, New York. Sponsored by the Gas Appliance Manufacturers Association, the meeting was attended by more than 100 of the nation's leading magazine and newspaper women editors.

Two-fold purpose of the conference was to secure the editors' recommendations for range improvements and to show advances in styling, convenience and performance which followed specific suggestions made last year. An impressive display of 1951 model "CP" ranges provided visual proof of 30 new features added since last year.

Ruth Soule, home service director, The Brooklyn Union Gas Co., acted as chairman and supervised the gas range demonstrations. Welcoming the editors and writers was Julius Klein, president, Caloric Stove Co., and vice-chairman, "CP" group, GAMA. Mr. Klein said the gas industry is suffering in public opinion from the many antiquated 15 to 30-year-old ranges still in use. Spectacular improvements available in the current "CP" automatic gas ranges must be shown to the public, he said, to prove the modernity of our product. What "CP" means as a buying guide to the consumer was explained by James I. Gorton, director of the group program.

Major interest centered on a discussion of new developments in gas ranges led by Tom Gibbons, advertising manager, American Stove Company. Mr. Gibbons reviewed the editors' 1950 suggestions and told point-by-point of improvements made in 1951 models. Now available, he noted, were ranges with added insulation for cooler cooking, faster burners for speedier cooking, new designs for easy cleaning, and built-in units permitting the oven to be separated from the top-range unit. He cited many other advances and concluded by exhibiting a range mock-up involving many original principles.

James Nelson, chief engineer, Cribben & Sexton Co., told what's new in A. G. A. and "CP" requirements, with emphasis on the continual upgrading of equipment. Phenomenal progress of the LP-gas segment of the industry was depicted by B. B. Turner, gas range sales manager, The Maytag Company. Material and supply factors were discussed by Paul Berno, development manager, The Tappan Stove Company. *(Continued on page 37)*

Hartford holds Home Economics Conference

The Hartford Gas Company's Annual Home Economics Conference, May 9, was attended by 155 teachers from the home economics departments of that city's public schools. Complete lines of gas appliances, displayed around the floor of the Company auditorium brought the teachers up to date on new equipment. At the speakers' table, during the smorgasbord dinner that opened the evening program, were: l. to r., Mrs. Sylvia Dragat, Pearl Grandy, Eloise Keckeforth, Carmel Along, Agnes Gorse and Ruth Cowles; D. R. Schively, Hartford Gas Co.; Jean Clark Thompson, who spoke on A. G. A. publicity and promotion programs; Dr. Margaret Chaney and, standing, Mistress of Ceremonies Mrs. Arra Sutton Mixter; Dean Grace Henderson, of Pennsylvania State College, principal speaker; Dean Clara Cerveney; and Bernice Strawn, Woman's Home Companion, who talked on new gas appliances

The PAR-financed A. G. A. program of field testing ten automatic ignition systems was described by E. Carl Sorby, vice-president, George D. Roper Corporation. Thirty-three different models of 200 ranges are being tested by 50 gas utilities who are cooperating in the project.

H. Leigh Whitelaw, managing director, GAMA, and H. Carl Wolf, managing director, A. G. A., spoke briefly at luncheon on the general progress of the gas industry.

Bringing this significant event to a close was D. A. Hulcy, president, A. G. A., and also president, Lone Star Gas Company and United States Chamber of Commerce. Mr. Hulcy paid tribute to the power of women editors and writers in molding public opinion. In the gas industry, he pointed out, the power of women is recognized in the extensive use of home service workers who make nearly ten million customer contacts annually. Thus, he continued, the industry maintains direct communication with household users of gas service.

Stage "Gas Country Tour"

REPRESENTATIVE high school senior home economics students, from 48 schools in United Natural Gas Company's service area, were taken on a one-day tour of the firm's facilities. UNG arranged the "Gas Country Tour," the first in its history, to acquaint students—and future homemakers—with some of the background facilities used to provide natural gas service.

Portland promotes Spring Festival

Grand prize winner and first among furniture stores, in a window display contest ushering in Portland Gas & Coke Company's "Spring Festival" range promotion, was this Powers Furniture Company window. The utility gave its "Spring Festival" all-out promotion with window display contests, radio spots, a Trip-to-Hollywood contest among consumers, a sales report contest among dealers, car and bus cards, motion picture lobby tie-ins and newspaper "scatter" ads

Pacific Northwest bids for Alberta's gas and oil

THE NEED for the development of adequate pipelines to supply natural gas, and possibly oil, to the Pacific Northwest was stressed at the 25th General Conference of the Pacific Northwest Trade Association, April 23-24, at Portland, Oregon. In a resolution adopted at that conference, the importance of oil and natural gas in the industrial development of the area, the vulnerability of the area to enemy attack and its shortage of oil, gas and coal in relation to its potential contribution to the defense program, were stressed.

More than two hundred leaders in the fields of commerce, business and industry and representing Pacific Northwest states, western Canada and Alaska joined in passing this resolution.

The resolution stated the association's view that "the necessity of meeting these shortages is more urgent in the Pacific Northwest than in any other part of North America." To solve these conditions, the resolution urged, "if and when gas and oil may be permitted export from Alberta, that the requirements of the Pacific Northwest should receive first consideration."

C. D. Howe, Canadian Minister of Trade and Commerce and Defense Production, was commended for his constructive interest and handling of natural resources.

Addressing the conference, Charles H. Gueffroy, president of Portland Gas & Coke Co., asserted that the region needs a cheap supply of Btu more than anything else. Mr. Gueffroy declared that natural gas, piped into the Pacific Northwest from the flush Alberta gas fields could save 12 million barrels of oil now consumed annually in the region. It would improve the region's economy, now at a great disadvantage when compared with California with its ready access to natural gas and huge oil reserves.

Pittsburgh companies hosts to teachers

APPROXIMATELY 300 home economics teachers, superintendents and supervising principals of Pittsburgh and Allegheny County schools were guests of Equitable Gas Co., The Manufacturers Light and Heat Co., and The Peoples Natural Gas Co. at the companies' annual dinner for home economics teachers. The event was held at the William Penn Hotel in Pittsburgh, Thursday evening, April 10.

Principal speakers were Lansing Lindquist, radio and television director, and Kay Neumann, director of home economics at Ketchum, MacLeod & Grove, Inc. Miss Neumann is the star of "Kay's Kitchen," half hour television show sponsored by the Natural Gas Companies Serving the Greater Pittsburgh District.

Mr. Lindquist spoke on "TV in Home Economics," touching upon various phases of the television industry in general and the prerequisites of a good televised home economics show in particular.

Miss Neumann described some of her experiences while doing televised home economics shows. She advised college home economic instructors to train their girls for television work. Thomas H. Evans, assistant to the vice-president in charge of operations, Equitable Gas Co., served as toastmaster.

Irene McDermott, director of home economics education, Pittsburgh City Schools, and Emma Watts, county supervisor of home economics, Allegheny County Schools, expressed their appreciation of the service being rendered the schools by the natural gas companies.

Before and after the dinner, the guests visited the Spring Style Show of 1951 Modern Gas Ranges set up at one end of the Pittsburgh Room. On display were the most modern gas ranges, gas refrigerators, gas dryers and gas water heaters. Decorations were in keeping with the current nationwide Spring Style Show of Automatic Gas Ranges.

Hostesses for the dinner were Kathryn L. Barnes, home service director, Equitable Gas Co., who served as chairman for the dinner; Flora C. Dowler, home service supervisor, The Manufacturers Light & Heat Co., and Ruth M. Severson, home service supervisor, The Peoples Natural Gas Company.

Others at the speakers' table introduced by Mr. Evans were: A. W. Conover, president of Equitable Gas; Christy Payne, vice-president, Peoples Natural Gas; Ray Little and W. L. Hutcheson, general sales managers for Equitable and Manufacturers Light & Heat, respectively, and John McElwain, manager of sales promotion for Peoples.

New data on orifice meter installation

a PAR activity

HELPFUL new information for everyone concerned with orifice metering is contained in a new A. G. A. publication, Interim Report No. 1 on Project NGD-9, "Orifice Meter Installation Requirements."

Research covered in the report was carried out on natural gas at Virginia Gas Transmission Company's Metering Station near Rockville, Maryland. Work was conducted under the supervision of the Joint A. G. A.—ASME Orifice Meter Committee and directed by Howard S. Bean, National Bureau of Standards. A number of gas and manufacturer companies contributed men and materials to the investigation.

The report includes work which was completed in 1949 and early 1950 on three phases of the program: the effect of plug valves, disturbance tests (comparison with Buffalo test —Gas Measurement Report No. 2) and effect of orifice fittings as compared to the usual orifice flanges. The findings are given in some 20 graphs for ready use by the metering engineer.

As the work progresses another interim report can be expected on meter run roughness, effect of globe valves in expansion bends and the size and location of pressure taps. A final report will be made, and if desirable, Gas Measurement Report No. 2 will be revised.

This research is financed under American Gas Association's Promotion, Advertising and Research program. The work is sponsored by the Natural Gas Department's Gas Measurement Committee, E. F. Schmidt, Lone Star Gas Co., Dallas, chairman.

Copies of the interim report are available from A. G. A. headquarters at $1.00 each.

State rule upheld in natural gas sale

THE VARIOUS STATES have authority over direct sales of natural gas to local consumers by interstate pipelines. This was the effect of a 7-2 ruling by the U. S. Supreme Court on May 14 involving proposed gas sales by Panhandle Eastern Pipe Line Company to Ford Motor Co., Dearborn, Michigan.

Whether Panhandle now can go ahead with its plan rests with the Michigan Public Service Commission. Justice Sherman Minton delivered the majority opinion. Justice Felix Frankfurter, joined by Justice William O. Douglas, dissented. Justice Frankfurter insisted that power over interstate commerce belongs to Congress.

"It is not for the states, in pursuit of local state policies, to decide what products from without may cross state boundaries or admit them on condition that they satisfy local economic policy," he said.

Corrosion instrument test reference book issued

A NEW REFERENCE BOOK, *Instruments for Electrolysis, Corrosion and Cathodic Protection Testing,* has been issued by the American Gas Association. The publication is intended to provide, in convenient form, a guide for the selection of instruments for engineers, operators and crews engaged in the mitigation of corrosion.

The book is divided into two main sections. The first is comprised of articles written to simplify technical knowledge to meet the practical needs of men in the field. In general, the articles pertain to basic theory, characteristics and use of the various instruments and equipment used in electrolysis corrosion and cathodic protection testing. The text is devoted to proper selection of instruments for various types of measurements commonly encountered. The second section of the book contains manufacturers' catalog sheets and descriptive circulars, grouped in sub-sections according to the types of instruments.

This publication was prepared by the Subcommittee on Instrumentation, of the Corrosion Committee, A. G. A. Operating Section, under the chairmanship of M. C. Miller of Ebasco Services, Inc. Other members of the committee are: Carl H. Davis, vice-chairman, The Montana Power Co.; R. C. Bryce, Philadelphia Electric Co.; R. L. Featherly, The Dow Chemical Co.; Walter J. Merwin, Institute of Gas Technology; Francis W. Ringer, Texas Eastern Transmission Corp.; J. O. Mandley, Michigan Consolidated Gas Co.; Pat H. Miller, Texas Eastern Transmission Corp.; and Ray M. Wainwright, University of Illinois.

The *Reference Book on Instruments for Electrolysis, Corrosion and Cathodic Protection Testing* is available from the American Gas Association for $1.50.

A. G. A. announces May '51 publications

LISTED BELOW are publications released by American Gas Association during May 1951, up to the time the MONTHLY went to press. Information in parentheses indicates audience for which each publication was designed.

Operating

• Copies of many papers presented at the 1951 A. G. A. Distribution, Motor Vehicles & Corrosion Conference and the Production & Chemical Conference are available from A. G. A. headquarters. A few papers are free; the price for others is 25 cents each.

Promotion

• **Ten Short Cuts to Quick Clean-Ups with an Automatic Gas Incinerator** (for consumers). Prepared by A.G.A. Promotion Bureau. From 4 cents to 4½ cents a copy depending on quantity. Discount of 1½ cents each to PAR subscribers. **PAR.**

• **Ten Ways to Take a Year-Round Vacation with Gas Air-Conditioning** (for consumers). Prepared by A.G.A. Promotion Bureau. From 4 cents to 4½ cents a copy depending on quantity. Discount of 1½ cents each to PAR subscribers. **PAR.**

• **Ten Reasons Why You're 20 Years Ahead of the Times with a New Gas Refrigerator** (for consumers). Prepared by A.G.A. Promotion Bureau. From 4 cents to 4½ cents a copy depending on quantity. Discount of 1½ cents each to PAR subscribers. **PAR.**

(These three booklets complete the BIG TEN series.)

Research

• **Bulletin 64, A Study of Thermocouple Type Elements for Automatic Ignition Systems** (utilities, manufacturers). Prepared by Committee on Domestic Gas Research. Available from A.G.A. Laboratories, Cleveland, Ohio, at $1.00 a copy. **PAR.**

• **Report 1176, Comparative Study of Various Methods of Cooking, Part I, Review and Analysis of Available Information** (utilities, manufacturers). Prepared by Committee on Domestic Gas Research. Available from A.G.A. Laboratories, Cleveland, Ohio, at $.75 a copy. **PAR.**

General

• **The PAR Plan, Sixth Annual Report** (utilities and pipe line companies). Prepared by E. J. Boothby, chairman, PAR Committee. Limited number of copies available free from A.G.A. **PAR.**

• **Interim Research Report No. 1, Investigation of Orifice Meter Installation Requirements** (natural gas industry and metering engineers). Prepared by Technical and Research Committee, Natural Gas Department. Copies available from A.G.A. at $1.00 a copy. **PAR.**

Utilization

• **Gas & Electric Consumption in Two College Cafeterias** (commercial kitchen operators, dealers, utility sales depts.). Available from A.G.A. at $.50 a copy.

• **Miss Home Service** (*The Pittsburgh Press, Roto Magazine,* May 13, 1951)—The story, in pictures, text and caption, depicts the wide variety of services rendered to the consumer by the gas utility company's home service department. (*The Pittsburgh Press,* Pittsburgh, Pa.)

Oil and gas production in layman's language

OIL AND GAS PRODUCTION, in language that the layman can comprehend, has been published by The University of Oklahoma Press, Norman, Okla. It is the announced purpose of this volume to explain simply and clearly where oil and gas occur, the nature of the reservoirs in which they are found, and the technical science of utilizing and supplementing the natural forces available for their recovery.

The highly technical language of the industry, which has prevented many laymen from acquiring a satisfactory knowledge of the principles of oil and gas production, has been avoided in this book. To simplify and clarify the discussion further, the Engineering Committee of the Interestate Oil Compact Commission, which has compiled the material, provides many illustrations, charts, graphs and tables. 128 pages. $2.75.

Gas cookery on TV

GAS HAS ENTERED the television field in Kansas City, Missouri. A new series of both one-minute and 60-second narrated TV films, sponsored by The Gas Service Co., is proving a valuable means of keeping the superior cooking features of the automatic gas range before the public.

Made by Alexander Film Company in Colorado Springs, Colo., the film shorts were produced with the cooperation of gas company personnel and members of Geo. D. Roper Corporation. Scenes for the films were made in a completely modern kitchen on one of the film company's buildings.

Gas company personnel on location during the shooting included Ray T. Ratliff and Charles D. Greason of the advertising department, and Helen Mandigo, home service director. Cy Edwards, advertising manager, Geo. D. Roper Corp.; Jack Phillips, Kansas City district representative, and Harry Stout, service supervisor, represented the range firm.

Each TV scenario is reproduced in the utility's publication, *Gas Service*, for the information of those employees who don't receive television in their homes.

Gas cooking story shown in Philadelphia

Program at annual Caloric meeting for retail sales personnel of The Philadelphia Gas Works Co. included this dramatic gas vs. electric demonstration. Left to right are: Jack Purcell, presiding Caloric representative; J. T. Baral, Jr., sales promotion manager of the firm; John F. Short, advertising manager, Philadelphia Gas Works; Edward H. Smoker, United Gas Improvement Company

Banquet climaxes Servel anniversary observance

THE silver anniversary program of Servel, Inc., was climaxed by a banquet sponsored by the Evansville Chamber of Commerce. Diners heard D. A. Hulcy, president of American Gas Association and president, Lone Star Gas Co., laud Servel's contribution to the gas industry.

"Good gas service can only be rendered with good gas appliances," he stated. "The Automatic Gas Water Heater, which also is made in Evansville, and of course, the Servel All-Year Air Conditioner has made a great contribution to the appeal of our industry."

Examining the increasing importance of gas for heating, Mr. Hulcy pointed out that, "In 1939 11.7 percent of the total heat energy supplied from natural resources in the United States was supplied by natural gas. This percentage has increased to 20 percent and it is estimated that within five years, the proportion supplied by natural gas will be close to one-fourth the total heat energy.

"The total assets of the gas industry had increased to 8¾ billion dollars at the end of 1950 and we are now the sixth in size of all industries in the United States. We have built tremendously in the recent years and our plans for building in the future are of the same order. This growth itself signifies the great capacity of our industry to serve and to participate in the program for making our nation stronger."

Louis Ruthenburg, chairman of the board, Servel, Inc., traced the growth of the Company, from the time Colonel William H. McCurdy established the Hercules Buggy Co., in Evansville, in 1902. He emphasized the manner in which the company had kept abreast of changing social and economic conditions and how it has met, with marked success, "The challenge of change." He called for a reestablishment of the incentive system in business enterprise, and a "rededication to the principles upon which the republic was founded."

W. Paul Jones, president and general manager of Servel, described as the company's greatest asset "acceptance and esteem of Servel and Servel products and their salability."

A.G.A. graduates five gas practice students

CERTIFICATES for satisfactory completion of the American Gas Practice course sponsored by American Gas Association have been awarded to the first five graduates during recent months. Enrollment in the course has reached a total of 43 students.

Pending availability of the course being prepared by the Institute of Gas Technology, Chicago, the sessions are being conducted by Jerome J. Morgan, professor emeritus of Columbia University and author of the American Gas Practice course. Originally, the home study course was conducted by Columbia University.

Sessions are conducted in two parts. The first covers manufactured gas, and the second deals with transmission, distribution, utilization and other gas company operations. The second part is equally applicable to manufactured and natural gas.

Recent graduates are: John Thomas Harkins, distribution clerk with North Shore Gas Co., Waukegan, Illinois; Thomas E. Colbert, Jr., gas service man with Atlanta Gas Light Co.; James L. Tuttle, superintendent of distribution, Ohio Gas Co.; Nicholas O. Boutzilo, engineering clerk and draftsman, Peoples Water and Gas Co., Miami Beach, Fla., and James M. Katzfey, plant engineer, Northern Indiana Public Service Co., East Chicago, Indiana.

Complete details on the course can be obtained from Professor Jerome J. Morgan, 67 Salter Place, Maplewood, New Jersey.

Hulcy elected Chamber of Commerce president

D. A. "Deck" HULCY was elected president of the Chamber of Commerce of the United States and two other gas men were elected directors, at the body's 39th annual meeting, May 2.

Mr. Hulcy is also president of A. G. A. and of the Lone Star Gas Co. His election to the presidency of the world's largest business organization, after being a director since 1946 and a vice-president during the past year, is the latest milestone in a career based on a great amount of hard work and a minimum of formal education. With only eight grades of formal schooling to his credit, Mr. Hulcy received the honorary Doctor of Laws degree last year from Texas Wesleyan College, which cited him as a "shining example of American genius and opportunity, overcoming lack of early education by an imperial will to achieve and grow."

Starting in 1920 as a clerk in the accounting department of the Lone Star Gas Co., Mr. Hulcy, after a steady succession of promotions, was elected president of the company twenty years later. To the gas industry, he is known as one of the originators of A. G. A.'s Promotion, Advertising and Research Committee (PAR) and an early advocate of the campaign to stop the waste of casinghead gas.

D. A. Hulcy

G. E. Whitwell

D. H. Mitchell

At the same time, there were elected to directorships of the Chamber, George E. Whitwell, vice-president, Philadelphia Electric Co., and Dean H. Mitchell, president, Northern Indiana Public Service Co. Mr. Whitwell is the former chairman of the A. G. A. laboratories managing committee and of the A. G. A. convention committee; he is now a member of the latter. Mr. Mitchell is an A.G.A. director.

Personal and otherwise

Grove retires from Consolidated Edison

ROBERT B. GROVE, vice-president of Consolidated Edison Company of New York, retired from active service on May 1, after 44 years with the company. He had been recognized for nearly thirty of those years as an authority on electric and gas rate policies by public utilities, and is widely known as an expert witness on rate matters before the New York State Public Service Commission.

Mr. Grove joined United Electric Light and Power in 1907 as a draftsman. He was secretary of United by 1928 and vice-president soon after.

In the years immediately preceding the Consolidated Edison mergers, Mr. Grove held vice-presidencies and directorships in several of the New York fuel and light companies. With the creation of the Consolidated Edison system in 1936, he became vice-president in charge of rates, legal matters, commercial relations, commercial buildings and property protection.

Robinson president of Consolidated Natural

J FRENCH ROBINSON, chairman of the board and formerly president of The East Ohio Gas Co., has been elected president of that firm's parent company, Consolidated Natural Gas Co. He succeeds F. H. Lerch, Jr., who becomes chairman of the board.

James Comerford, treasurer, was elected to the newly created post of executive vice-president of Consolidated Natural Gas.

Mr. Lerch is a prominent member of American Gas Association. He is a former director of A. G. A. and is currently chairman of the Association's Finance and Control Committee. He is chairman of the board of trustees, Institute of Gas Technology, and a trustee, Illinois Institute of Technology.

Mr. Robinson was the 1944-45 president of A. G. A. Earlier, he was chairman of A. G. A.'s Natural Gas Section. He is serving currently as chairman of the A. G. A. National Defense Committee and as a director of A. G. A. He is a past-president of the Pennsylvania Natural Gas Men's Association.

Mr. Robinson served from 1921 to 1933 as geologist and engineer for The Peoples Natural Gas Co., The Columbia Natural Gas Co. and The Hope Natural Gas Co., all Standard Oil Co. (New Jersey) affiliates. From 1930 to 1935 he was manager of the New York State Natural Gas Corp. and the Keuka Construction Corp., and from 1933 to 1935 was vice-president of The Peoples Natural Gas Co., and The Columbia Natural Gas Co., of Pittsburgh.

He became president of the latter two companies in 1936. He was also president of the New York State Natural Gas Corp., Keuka Construction Corp., Reserve Gas Co. and the Lycoming United Gas Company. He was elected president of The East Ohio Gas Co., November 15, 1940 and a director of Consolidated Natural Gas Co. on November 1, 1943.

J F. Robinson

F. H. Lerch, Jr.

Columbia System advances Young and Crocker

GEORGE S. YOUNG, formerly executive vice-president, was elected president of the Columbia Gas System, Inc., to succeed Stuart M. Crocker, who takes the newly created post of chairman of the board and continues as chief executive officer.

Mr. Young joined Columbia in 1930 as a junior engineer and became vice-president and general manager of the Michigan Gas Transmission Corp., a then-subsidiary, in 1936. Thereafter he became vice-president of Columbia Engineering Corp., the System's service company, a director of this company, a director of the parent corporation, vice-president in charge of its operations and, in November, 1949, executive vice-president.

Mr. Young is a member of A. G. A.'s General Research Planning Committee and of its Technical and Research Committee, Natural Gas Department. Mr. Crocker was vice chairman for 1949 and 1950, and is now a member, of A. G. A.'s PAR Committee and on the Advisory Committee on Gas Home Study of Courses of the Institute of Gas Technology.

G. S. Young

S. M. Crocker

East Ohio makes managerial promotions

FOUR CHANGES have been made in managerial assignments at The East Ohio Gas Co. George P. Binder, superintendent of the Cleveland operating division has been named the company's chief engineer. He succeeds John H. Carson who had been previously elected vice-president of East Ohio.

Succeeding Mr. Binder as superintendent will be Thomas J. Noonan, general sales manager. Former Supervisor of Domestic Sales Lee Corn will take over the general sales manager's post vacated by Mr. Noonan, and George F. Duggan, the company's supervisor of house heating engineers, will be the new domestic sales head.

G. P. Binder

T. J. Noonan

Lee Corn

G. F. Duggan

Mr. Binder has been associated with East Ohio since 1920, when he joined the Cleveland operating division as an engineer. He is a member of the Distribution Committee of A. G. A.

Mr. Noonan joined the industrial sales department of East Ohio in 1933. He holds membership on both the Managing Committee and the Sales Training Committee, Industrial and Commercial Gas Section, A. G. A.

East Ohio's new general sales manager, Lee Corn, began his career with the company as a meter reader in 1929. He is a vice-chairman of the 1951 Eastern Regional Conference and a member of the Refrigeration Committee of A. G. A. Mr. Duggan, who replaces Mr. Corn as head of domestic sales, has been employed by the gas company for 24 years.

Houston Natural Gas names new officers

KENNETH FELLOWS has been elected secretary, and John B. Cookenboo has been elected treasurer, of the Houston (Texas) Natural Gas System. In addition to their newly acquired responsibilities, Mr. Fellows will continue to direct the personnel, public relations and advertising activities of the company, while Mr. Cookenboo will continue as company controller and will retain executive direction over the company's accounting functions.

Mr. Fellows has served on the A. G. A. national advertising copy committee for the past five years. Mr. Cookenboo is past chairman of the accounting section of the Southern Gas Association.

Mr. Grover Jones, who has been secretary of the Houston Natural Gas System since 1940, and treasurer since 1948, has resigned his position of secretary-treasurer, to retire from active employment under the provisions of the company's employee retirement plan.

Kenneth Fellows

J. B. Cookenboo

Grover Jones

Jersey veteran retires

A 53-YEAR MAN in the gas industry, Jacob B. "Jake" Jones, retired recently from South Jersey Gas Company. Mr. Jones had been active in the management of Bridgeton Gas Light Company for many years and was its president when that company was sold to South Jersey Gas Company nearly a year ago.

Numerous utility and business leaders attended a testimonial dinner in his honor. A special tribute to Mr. Jones was presented by Earl Smith, president, South Jersey Gas Co.

Peacock opens office

PAUL E. PEACOCK, JR., P. O. Box 268, Westfield, N. J., has established an LP-gas engineering and contracting service. During 20 years of experience in the field, Mr. Peacock has designed more than 50 LP-Gas plants and written several articles on LP-gas that have been published in industry trade papers. At present he is working on a series covering use of LP-gas as a standby fuel. One of his earlier articles appeared in A. G. A. MONTHLY for July-August and September 1945.

Dalbeck takes Malden post

HAROLD L. DALBECK has been named assistant treasurer for New England Electric System companies of the Northeastern, Mystic Valley and North Shore districts. His headquarters are in Malden, Massachusetts.

Since 1940, he has been treasurer of New England Power Service Company. Before that, he was general auditor for the New England Gas and Electric Association companies.

Mr. Dalbeck is a member of American Gas Association.

Personnel changes made at Laclede

C. E. SCHOENE, chief engineer of Laclede Gas Co., St. Louis, has been named to that firm's newly created post of consulting engineer. O. R. Allgeier was advanced to chief engineer to succeed Mr. Schoene. H. M. Gerken, former superintendent of the service and installation department, was made assistant to Mr. Schoene.

Allen H. Burgess, former district superintendent for the Oklahoma Natural Gas Co., was named general superintendent for Laclede. William M. Hawkins was named superintendent of service and installation department, in which he had been assistant superintendent. Harrison Liebrum was selected to assist Mr. Hawkins. E. F. Trunk was advanced to the post of development engineer, Robert E. Murray to load control engineer and William H. Donnelly became assistant to the load control engineer.

Messrs. Schoene, Allgeier, Gerken, and Trunk are members of A.G.A.

A. H. Burgess

Texas Eastern editor named

LEON H. SIPES has been appointed editor of publications for Texas Eastern Transmission Corporation. Mr. Sipes, formerly general manager of Radio Enterprises, Inc., El Dorado, Arkansas, has been actively engaged in radio and editorial work since 1932, and has served as manager of radio station KELD since 1943. Prior to that time, as assistant advertising manager for an oil company, he edited an industrial publication. He is past president of the Arkansas Associated Press Broadcasters Association and a member of the board of directors of the Arkansas Broadcasters Association. He has been vice-president of the El Dorado C. of C.

American Meter names Hamilton president

WILLIAM G. HAMILTON, JR., has been elected president of American Meter Co. He was first employed by Helme and McIlhenny, a subsidiary of the American Meter Co., after attending Swarthmore College. In 1932, he was made sales engineer for Helme and McIlhenny in Philadelphia, specializing in refinery and chemical plant instruments.

In 1938, Mr. Hamilton was made assistant manager of the American Meter Company's Philadelphia plant and became acting manager during the war. In 1946 he was appointed manager of the firm's Philadelphia factory and in 1947 became vice-president in charge of sales, a position he held until his recent election as president.

Mr. Hamilton is a member of American Gas Association, Liquefied Petroleum Gas Association and Gas Appliance Manufacturers Association, a director of Pennsylvania Gas Association and clerk of the Gild of Ancient Supplers.

W. G. Hamilton, Jr.

Corrosion engineer retires

L. J. GORMAN, engineer in charge of electrolysis studies and corrosion control, Consolidated Edison Co. of New York, Inc., has retired after 40 years of service. He is now associated with Robin Beach Engineers Associated, Brooklyn, N. Y., as consultant on electrolytic corrosion of underground pipe and cable systems throughout the utility and manufacturing industries.

Mr. Gorman is the author of numerous papers in leading scientific and engineering periodicals. His subjects included specialized theory and practice of electrolytic corrosions and studies of microbiological corrosion.

Brooklyn Union elects

Samuel Green

SAMUEL GREEN was elected chief engineer of The Brooklyn Union Gas Co. He was formerly assistant chief engineer of the company, and has spent his entire business career in the engineering division, since he joined it in 1912. Mr. Green has been very active in the Operating Section of A.G.A., where he was at one time chairman of the Gas Production Committee, and is now on the Gas Production Research Committee.

Ansel B. Huyck, who has been vice-president and chief engineer of Brooklyn Union, was reelected vice-president. Other officers were also reelected.

Named head of new department

THE NEWLY CREATED revenue accounting division of The Dayton Power and Light Co. will be in charge of Arthur E. Gerlaugh. In assuming these increased responsibilities, Mr. Gerlaugh has been promoted to assistant comptroller.

Since he joined the company in 1920, Mr. Gerlaugh has held various positions in the accounting department. The most recent of his positions was that of supervisor of the customer accounting department. The new assistant comptroller was recently elected president of the Dayton Chapter of the National Office Management Association.

Equitable Gas appointments

WALTER C. BOMHOFF has been appointed manager of planning and development for Equitable Gas, Pittsburgh and West Virginia Gas, Bellewood & Monongahela City Natural Gas, and Philadelphia Oil Companies.

After attending Carnegie Institute of Technology, Mr. Bomhoff entered the employ of the companies in 1926, as a clerk in the gas measurement division. He was assistant manager of planning and development, prior to his present employment. He is a member of American Gas Association, Pennsylvania Natural Gas Men's Association and the Engineers Society of Western Pennsylvania.

John S. Graves has been named general auditor for Equitable Gas, Pittsburgh and West Virginia Gas, and Philadelphia Oil Company. In his new position, Mr. Graves will supervise the general accounting, payroll and stores accounting and customer accounting division of the accounting department.

Stevenson named president of Texas Gas

W. T. STEVENSON has been elected president of Texas Gas Transmission Company. J. H. Hillman, Jr., formerly president and chairman of the board, will continue in the latter capacity.

Mr. Stevenson has been executive vice-president and director of Texas Gas since the company was formed in 1948. He was also an officer and director of Kentucky Natural Gas Corp. and Memphis Natural Gas Co., the two predecessor companies which were merged with and into Texas Gas in 1948.

He was introduced to the natural gas industry in 1926, when he joined the Kansas City office of Arthur Anderson & Co., public accountants, to specialize in gas utilities. In 1928 he was assigned to do work for Kentucky Natural and the next year joined the company as assistant treasurer and director. He is also president of Western Kentucky Gas Company.

Operating section

(Continued from page 32)

demand additional production capacity requiring new facilities. Operating results were also supplied. The paper should prove valuable to gas utility companies now considering the processing of natural gas.

Cyclic catalytic reforming of natural gas in Philadelphia was described by O. B. Holman, The Philadelphia Gas Works Company. This process was developed by The United Engineers and Constructors, Inc., in collaboration with The United Gas Improvement Company. It has been in operation on a converted carburetted water gas set since July 1949. The accumulated running time is 11,628 hours.

The set is suitably equipped with safety devices to guard against possible malfunctions, and operation has been handled easily by normal operating personnel.

Mr. Holman noted that most of the gas produced to date has contained a high percentage of inerts. This lowers the air-natural gas mixture requirements and keeps down the oxygen content of the sendout gas.

The catalyst bed was changed after about 11,000 operating hours. This was necessary because of a glaze on the catalyst due to the process steam and not because of loss of nickel content.

Further plans call for the purchase of more cyclic catalytic sets of a new design.

Experiences with natural gas at Consolidated Edison Co. of New York, Inc., were described by Vincent Salzone. The following schedule was set up to convert to natural gas usage, he said:

(1) On arrival of natural gas, place main pressure regulators into service and make necessary adjustments. Then start up jet gas plant.

(2) With jet gas plant operating satisfactorily, lower the Btu of the carburetted water gas and start cold enriching.

(3) With the jet gas and cold enriching equipment functioning properly, start converting the carburetted water gas sets to reforming at the rate of two sets per day.

The company is feeling its way and experimenting with different cycles, therefore Mr. Salzone did not present any operating results.

The Brooklyn Union Gas Company's experiences with natural gas were outlined by A. G. Hall.

"Natural gas usage constitutes a replacement for oil in the gas making process," he declared. "As much natural gas as practical is being reformed and the balance is used for enrichment, viz., preholder and mixing station.

"Surplus natural gas is used for underfiring coke ovens and plant boilers.

". . . To date, two-thirds of the heating

vails of the coke ovens are operating successfully on a modified natural gas-air mix of 560 Btu. This gas," he said, "is approximately twice as heavy as regular coke oven gas and, as a result, has introduced new problems in pressure control and cross-wall distribution which are being evaluated and compensated for as the work progresses. The capacity of the jets has proved to be only 80 percent of that anticipated, but it is expected that larger size nozzles will rectify this condition."

Final speaker on the symposium was R. S. Emanuel, Public Service Electric & Gas Co., Newark, New Jersey.

Mr. Emanuel gave a brief description of plants and capacities before natural gas became available and changes made to utilize it. He told what use was made of the first allotment, 2.8 million cubic feet of natural gas, on December 22, 1950, and related how increasing daily amounts were handled up to the maximum which was received in March.

Gas mixing at the large Harrison plant was discussed together with the controls used. Mr. Emanuel also described operating changes involved in the utilization of natural gas.

Conferees took advantage of the opportunity to discuss individual problems during the seven luncheon conferences on Tuesday and Wednesday. Utility and manufacturer representatives joined with guest speakers to speak on latest developments and improvements.

Following is a list of these luncheon conferences:

High Btu Gas—G. G. Howie, Cambridge Gas Light Co., luncheon chairman; H. E. Ferris, South Atlantic Gas Co., Savannah, Ga., alternate chairman.

Oxygen and Its Application to Gas Making—H. R. Batchelder, Bureau of Mines, luncheon chairman; R. R. White, University of Michigan, alternate chairman.

Plant Waste Disposal—F. E. Vandaveer, The East Ohio Gas Co., Cleveland, luncheon chairman; L. B. Bowman, Rochester Gas & Electric Corp., alternate chairman.

Carbonization and Coke—H. C. King, Rochester Gas & Electric Corp., luncheon chairman; J. M. Spees, Koppers Co., Inc., Kearny, N. J., alternate chairman.

Chemistry in the Gas Industry—H. J. Rose, Bituminous Coal Research, Inc., luncheon chairman; G. V. McGurl, Koppers Co., Inc., Pittsburgh, alternate chairman.

LP-Gas—A. B. Lauderbaugh, The Manufacturers Light and Heat Co., Pittsburgh, committee chairman; S. W. Horsfield, Long Island Lighting Co., committee vice-chairman.

Water Gas—G. L. Bixby, Consolidated Edison Co. of New York, Inc., luncheon chairman; B. L. Peables, Blackstone Valley Gas & Electric Co., Pawtucket, alternate chairman.

Gas production*

MANUFACTURING and production problems and such questions as the economics of mixing various gases, still are vitally important. This is true in spite of the advent of natural gas in most sections of the country. Hard at work in this field is the Gas Production Committee of A.G.A. under its chairman, George T. Bentley, Michigan Consolidated Gas Co., Detroit. The committee vice-chairman is C. L. Hulswit, president, Rockland Gas Co., Inc., Spring Valley, New York.

What Btu should be distributed? What part of manufacturing plants should be retained when natural gas arrives? How about standby for emergencies? How are peak loads to be served? What conditioning of gas is necessary before distribution? All these are questions with which the production man is concerned. Answers to a number of these questions were provided at the Chemical and Production Conference general sessions in New York last month. Additional information was produced during businesslike luncheon conference sessions.

The importance of gas production has been recognized by making this committee a major subdivision of the A.G.A. Operating Section. Committee work is carried out in specific fields by these subcommittees: Water Gas, Carbonization and Coke, Manufacture of Higher Btu Gases, Use and Handling of LP-Gases, Coal Expansion Testing; Survey of Gas, Coke and By-Product Making Properties of American Coals; Use of Oxygen in Gas Manufacture, Builders, Safety, and two subcommittees controlled jointly with the Chemical Committee covering Tar Dehydration and Plant Waste Disposal.

So broad is the scope of the problems faced by these groups that many of their activities must be conducted on a continuing basis. From time-to-time, developments or newsworthy progress will be reported to the Editorial Committee of the Operating Section and printed in the A. G. A. MONTHLY. A number of major projects will be discussed on the Section's program at the A.G.A. Convention in October. Later, the entire program will be handed over to the incoming committee and reviewed in the light of new developments.

G. T. Bentley, Chairman, Gas Production Committee.

* This article is a special contribution of the Editorial Committee, A. G. A. Operating Section.

More storage and promotion urged for LP-gas

STRONG pleas for two vitally needed industry efforts to insure the continued growth and progress of the LP-gas business—increased storage facilities and sustained promotional activity—keynoted the 20th anniversary convention and trade show of the Liquefied Petroleum Gas Association, May 7-10, Stevens Hotel, Chicago. Attendance was near the 2200-mark, a new record.

James E. Pew, manager, natural gas and natural gasoline department, Sun Oil Co., Philadelphia, and immediate past-president, Natural Gasoline Association of America, warned convention-goers that the industry faces a grave responsibility to increase storage facilities as a safeguard against recurrence of the critical shortage condition which existed last winter. He said the present mobilization period would prove a blessing in disguise in that it will give the LP-gas industry a chance to get its house in order and provide improved service to present and future customers.

LP gas is now cooking upwards of 60,000,000 meals each day, Peter A. Anderson, LPGA president, told association members in his annual report.

"It is heating hundreds of thousands of homes in the winter, refrigerating their food, heating their water and performing many other household tasks," he said. It is running many of the tractors which pull the plows and cultivate the fields of our great food producing areas. It is pumping water for irrigation and livestock. It is drying corn and hay and curing tobacco. It is running busses on the streets of Chicago and in many other cities. It is supplying the entire gas requirements of 249 towns and the standby and peak load requirements of most of the large city utilities. Industrial uses have also increased phenomenally."

In the present international emergency, Mr. Anderson said, LP-gas can make the following three contributions to the nation's defense effort: (1) Its use for engine fuel can release great quantities of gasoline for military services; (2) its many specialized applications for manufacturers engaged in defense work will do the job more efficiently, economically and dependably than any other fuel; (3) at home and with the armed forces, in the event of enemy attack, it can provide a fuel that is unexcelled for mobility, flexibility and convenience of supply.

Asserting that the National LP-Gas Promotional Program launched last year is now a full-fledged, hard-hitting operation, Lee A. Brand, vice-president, Empire Stove Co., Belleville, Ill., and chairman of the National Committee for LP-Gas Promotion, said the results are already sufficient to prove to the more skeptical that the project is already in high gear and accomplishing its object.

Howard D. White, LPGA executive vice-president, who has spent most of his time at the nation's capital in recent months, told the convention practically all uses of LP-gas will feel the impact of government control during the emergency. Each of them, he said, is dependent not simply on the availability of LP-gas, but upon a wide variety of utilization equipment which requires specific quantities of strategic metals and materials already in short supply.

William S. Lander, president, Rulane Gas Co., Charlotte, N. C., was elected president of the association for the coming year. Other officers elected include F. N. Mabee, president, Colorado Natural Gas & Fuel Co., Denver, first vice-president; C. M. Ambrose, Jr., president, Liquefied Petroleum Gas Corp., Seattle, Wash., second vice-president; Walter Miller, Dri-Gas Corp., Chicago, treasurer; Howard D. White, Chicago, executive vice-president, Arthur C. Kreutzer, vice-president and counsel.

George G. Oberfell, retired vice-president of Phillips Petroleum Co., Bartlesville, Okla., was honored with Distinguished Service Award of Liquefied Petroleum Gas Association.

Accounting

(Continued from page 23)

Power Company. His committee has sent preliminary questionnaires to all members for the purpose of eliminating local distribution companies not affected by the problem. Further efforts will be concentrated on the remaining companies.

A. G. Neumann, Wisconsin Electric Power Company, reported that questionnaires have been sent out to determine the various methods employed in handling cash receipts. As an illustration of a new method, he had A. C. Haake of The Peoples Gas Light and Coke Company describe a mechanized cash posting plan now under consideration by that company. Mr. Haake brought out the advantages of mechanizing the procedure and discussed methods of reducing the tabulating operations by setting up control totals on a district basis and mechanically posting the cash on a bi-daily basis.

A survey of methods for meeting the manpower shortage was presented by R. A. Krauss of the Cleveland Electric Illuminating Company. The survey indicated a trend towards scheduling overtime, extending the meter reading and billing periods, mechanizing procedures, and hiring more female employees as the most widely proposed methods of meeting the shortage. Many companies indicated hesitancy to lower employment standards due to resulting loss of efficiency.

W. M. Penfield, Public Service Electric and Gas Company, spoke on the subject "Improving Meter Reading Efficiency." Much interest in this topic was shown by the delegates.

The various phases of customer relations were discussed at the Customer Relations luncheon, at which Charles L. Digiovanni, The Laclede Gas Company, and Edward G. Prentice, NEGEA Service Corporation, presided.

D. E. Barr, The Ohio Fuel Gas Company, presented a complete report on the results of his study of training employes by the use of pictures. The group generally agreed that slides with sound were preferable to film, because of the difference in cost between these two mediums.

The work which has been done in the preparation of a manual to be used for training purposes was reviewed by William E. Brokaw, Public Service Electric and Gas Company. The wealth of information which has been promised in the manual, will make the manual a "must" in all training programs.

Considerable interest was shown in the talk "Improving Telephone Contacts," by Clarence J. Berner, Wisconsin Electric Power Company. Mr. Berner told the group about the monitor board which has been installed in his company and has proved so satisfactory.

Harry C. Smith, The Peoples Gas Light and Coke Company, offered some interesting statistics in his paper "Are District Offices the Thing?" He outlined the advantages of district offices, stressing the opportunities such offices provide to increase good customer relations. Taking an opposite view, H. M. Schelden, Pennsylvania Power and Light Company, told how his company discontinued many of its branch offices. Following these two presentations, a lively discussion took place.

"Making All Contacts Count" was the subject of Henry R. Flanegan, Philadelphia Electric Company, Philadelphia. He pointed out that customer relations is, in his opinion, an emotional problem. He set the group buzzing with his rapid fire questions on the things companies do to improve customer relations. He pointed out that many companies train only a small portion of their employees in the practice of good customer contacts and neglect the important job of training *all employees* who in any way have contact with our customers.

First impressions are the most important, William E. Sturm, West Penn Power Company, pointed out in his discussion, appropriately called "Hi, Neighbor!" Mr. Sturm told of some of the steps other businesses take to welcome a new customer and asked the group what their companies do in this respect. Surprisingly enough, all in the group admitted that no special attention was given to a new customer and agreed that some thought should be given to such a practice.

Kenneth R. Wells, vice-president, American National Bank and Trust Company of Chicago, opened the Customer Collections luncheon meeting which was conducted under the guidance of Fred J. Flom, The Detroit Edison Company, and Harry S. Hahn, The Ohio Fuel Gas Company. Mr. Wells stressed the importance of personalized handling of customers' past due accounts as against "mechanical" systems.

Chairman of the committee reporting on authorized pay station practices, Walter E. Travis, The Cleveland Electric Illuminating Company, asked for the cooperation of the industry in making a comprehensive study of this subject.

Dudley M. Arnold, Pennsylvania Power Company, discussed "Better Collection Letters." The speaker gave the delegates helpful ideas in the treatment of this phase of work.

Reporting for the committee studying budget payment plans for gas space heating, Frank J. Maguire, Boston Consolidated Gas Company, said that the project is still being worked upon.

Highlight of this meeting was the discussion forum which included a spirited discussion on the paper "Collection Follow-up by Telephone" which was presented at the morning session.

A new phase of collection, mobile collection units and drive-in pay stations, presented by George A. Kunz, Consolidated Edison Company of New York, Inc., G. Sam Zilly, The Detroit Edison Company and Harry S. Hahn, The Ohio Fuel Gas Company, proved to be a most interesting topic. These speakers told how these services were developed and used by their companies.

The Wednesday morning session of the Customer Activities Group proved to be interesting and timely. J. D. Elliott of the Detroit Edison Company described his company's program for a "Democratic Technique of Supervision." He pointed out that an autocratic supervisor makes all decisions himself, whereas a "laissez-faire" supervisor never makes any decisions and provides no leadership. The happy medium is a democratic supervisor who discusses problems with employees and lets them help in making the decisions. Mr. Elliott cited numerous examples where this policy has saved money and has increased employee cooperation and goodwill.

The customer accounting, collections, and relations committees joined in a unique panel discussion on the subject of monthly billing vs. other billing. From an accounting viewpoint, P. E. Ewers, Michigan Consolidated Gas Company, substituting for John H. W. Roper, Washington Gas Light Company, discussed the disadvantages of bi-monthly billing plans, and J. D. Green, Philadelphia Electric Company, defended the practice. Disadvantages cited were the initial loss of revenue, an increase in outstanding items and partial payments and an increase in missed reading expense. Some of the advantages included the

substantial savings and the employee reduction provided by the plan.

The collections viewpoint was presented by Paul R. Fry, The Manufacturers' Light and Heat Company, who pointed out the increased collection difficulties resulting from an increase in the size of the bill. S. C. Grant, Philadelphia Electric Company, defended the practice by describing the favorable collection experience of the companies that have adopted bi-monthly billing.

J. C. Faris, Union Electric Company of Missouri, gave the customer relations objections to the plan by citing the difficulties involved in handling customers who complain about delayed payment charges and high bills. G. A. Kunz, Consolidated Edison Company of New York, contended that customers will adapt themselves to any reasonable change and illustrated the point with the experience of his company.

A. C. Haake of The Peoples Gas Light and Coke Company described a pending program for billing gas budget and appliance customers on a coupon book basis to solve the billing problems on such customers when a bi-monthly billing plan is adopted. L. J. Rauh, Consolidated Gas Electric Light and Power Company of Baltimore, who acted as moderator of the session, concluded the meeting with a summary of survey results on the subject. Although the survey disclosed predominant feeling in favor of monthly billing, he pointed out that sentiment is swinging towards the bi-monthly or quarterly reading and billing plans.

Three meetings sponsored by the Internal Auditing Committee under the leadership of H. R. Symes, The Detroit Edison Company, and P. J. Buzanga, Consolidated Edison Company of New York, Inc., presented a well rounded program. Mr. Symes traced the development and outlined the activity of the Joint E.E.I.-A.G.A. Committee on Internal Auditing, relating such activity to the dissemination of case history audits and the compilation of an audit format to regulate the preparation of audit manuals.

W. T. Hofstetter, The Peoples Gas Light and Coke Company, chairman of the Sub-committee on Audit Manual Format and Context, high-lighted the interest shown by members in the preparation of audit manuals as evidenced by responses to questionnaires dealing with subject matter preferences.

J. K. Laurentz, The Brooklyn Union Gas Company, reporting for the subcommittee on auditing case histories, outlined the work of the committee since its inception in 1950. Since that time, 24 case histories have been issued.

The closing speaker of the Tuesday morning session was C. J. Nichols, Consolidated Gas Electric Light and Power Company of Baltimore. The Sub-committee on Audit Manuals issued its second release, Audit of Accounts Payable, during this meeting. In presenting it, Mr. Nichols stated that the manual covering all phases of customers' billing, accounting and collection activities had been a challenging assignment due to the varying audit procedures of the various companies.

Highlight of the afternoon session was a seven-man panel shop talk discussion on various auditing programs. Moderator J. M. Trant, The Peoples Natural Gas Company, was assisted by the following panel members: C. A. Ambrister, Oklahoma Natural Gas Company; G. Becher, The Dayton Power and Light Company; T. F. Cartwright, Amarillo Gas Company; R. T. Hansen, Citizens Gas and Coke Utility; F. J. Labanca, New Orleans Public Service Inc.; and J. K. Laurentz, The Brooklyn Union Gas Company.

W. T. Hamilton, The Cleveland Electric Illuminating Company, acted as discussion leader at the Wednesday morning meeting which was centered around the theme "How May the Internal Auditor Better Serve His Company?" Various phases of this topic were developed by E. R. Mellon, Washington Gas Light Company, who discussed the possibility of using the auditing department with the wide range of experience it offers in training supervisory personnel for management; by A. J. Gregory, The Wisconsin Electric Power Company, who discussed some of the basic principles involved in the evaluation of operating performance and personnel in other departments. This can in some measure be done by the auditor in pursuit of his regular assignments, thus rendering an additional constructive service to management. J. D. Hogan, The Michigan Consolidated Gas Company, discussed the auditor's responsibility in the determination of compliance with and evaluation of established policy and procedures, and his ability to process information with respect to such policy to lower levels of responsibility.

The Depreciation Committee of E.E.I., Alex. E. Bauhan, Public Service Electric and Gas Company, chairman, reported upon the work the committee is performing in regards to a report concerning depreciation reserve accrual and reserve determination, and a new system of accounts in which the depreciation aspect will be given considerable overhauling.

Maurice R. Scharff, consultant, reported on "What the Courts and Commissions Said About Depreciation in 1950." Scharff said there are definite trends toward group straight depreciation, remaining life method of adjusting reserves in conjunction with group straight line depreciation and cost less remaining life method of depreciation reserve requirement.

W. J. Foster Jr., New York State Electric and Gas Corporation, as chairman of the Depreciation Accounting Practices Sub-committee presented the findings of this committee in regard to depreciation accounting practices of individual companies.

Following Mr. Foster's report, a symposium on depreciation took place. The participants were W. G. Pilgrim, The Peoples Gas Light and Coke Company; F. L. Lovett, Rockland Light and Power Company; B. A. Morse, Southern California Edison Company; F. E. Drapalik, Union Electric Company of Missouri; H. R. Whiton, Virginia Electric and Power Company; V. L. Kohl, Commonwealth Edison Company; and A. B. Cates Jr., Southern California Gas Co.

Three meetings sponsored by the Plant Accounting and Property Record Committees under the chairmanship of C. E. Raines, Niagara Mohawk Power Corporation, and H. G. Eilers, The Cincinnati Gas and Electric Company, brought out valuable information on overheads, depreciation, accounting simplification and property records.

At the first meeting on Tuesday morning E. D. King, The Detroit Edison Company, reported for the Sub-committee on Capitalization of Overheads. The interest in this subject was evidenced by the conferees participation in the general discussion which followed.

K. R. Watson, Philadelphia Electric Company, in approaching the subject "Plant Costs Accounting Simplification" outlined the method of distributing various costs applicable to mass accounts followed by his company. He also presented a method used by a large gas and electric utility *(Continued on page 52)*

OBITUARY

Dr. John J. Wittmer

Dr. J. J. Wittmer

vice-president of Consolidated Edison Co. in charge of employee relations and an authority on industrial medicine died May 19, after a heart attack. Dr. Wittmer developed for Consolidated Edison a program of medical and other benefits for employees which became a model for American industry. The program attracted wide attention a few years ago, when the company announced that it regarded certain forms of alcoholism as being pathological and proposed to rehabilitate problem drinkers who otherwise had good employment records.

As a result of Dr. Wittmer's efforts to solve the problem of alcoholism among wage earners, the Yale University Center of Alcohol Studies appointed him, last month, as chairman of a national advisory council of industrial and commercial companies.

Dr. Wittmer graduated from Fordham University and obtained his medical degree from the Long Island College of Medicine in 1922. He joined Consolidated Edison in 1924 as staff physician, and became successively supervising physician, medical director and personnel director. He was elected a vice-president a year ago. In addition, he was active in civic, social and medical association work. An outstanding authority in the field of industrial medicine, Dr. Wittmer's paper, "Are 'Greybeards' White Elephants?" delivered before the 1950 A. G. A. convention, received broad acclaim and copies were widely distributed.

Nelson L. Miller

director of research engineering, The Detroit-Michigan Stove Co., died May 16, at the age of 45, after a brief illness. Upon graduation from Ohio University as a combustion engineer, Mr. Miller joined the A. G. A. laboratories where he remained for eight years. In 1934, he joined the engineering department of The Detroit-Michigan Stove Co. and was later made director of research engineering. Mr. Miller was a member of the A. G. A. Sub-Committee to Establish Approval Requirements for Commercial Cooking Equipment.

A. V. Smith

consulting engineer, Bala-Cynwyd, Pa., died suddenly on April 2. He was employed by the Consolidated Edison Co., New York, several years ago, working on electrolysis and corrosion of underground cables and pipes. Subsequently he was corrosion engineer with the United Gas Improvement Co., Philadelphia, until 1940, when he resigned to become an independent consulting engineer.

Mr. Smith had long been active in A. G. A. Operating Section activities and was the 1943 winner of the Beal Medal for his paper, "Cathodic Protection Interference." He was Chairman of the A. G. A. Distribution Committee's Subcommittee on Pipe Coatings and Corrosion for the year 1938. He was a member of the Corrosion Committee from its establishment as an independent committee in 1948 until October 1949. He was also a member of its Subcommittee on the Cause of Underground Corrosion of Metals.

Donald D. Beach

industrial sales manager of Atlanta Gas Light Company, died at his home in Atlanta on April 29, after an illness of several months. He was 48 years old.

Mr. Beach attended Ohio State University and joined Atlanta Gas Light Company in 1930. Prior to that he was district engineer for Ohio Fuel Gas Co., Columbus, Ohio.

Widely known in professional circles, he had served as president of the Georgia chapter of Professional Engineers and as president of the American Society for Metals. He took an active part in committee work in the Southern Gas Association and was a member of the Managing Committee and of the Sales Training Committee of the Industrial and Commercial Gas Section of A. G. A.

Franklin T. Rainey

F. T. Rainey

vice-president of The East Tennessee Natural Gas Co., and chairman of the A. G. A. committee on industrial and commercial gas research, died May 2, in Mercy Hospital, Toledo. Mr. Rainey had been active in A. G. A. and was at one time general chairman of its Industrial and Commercial Gas Section. He served on the A. G. A. committee on comparison of competitive services, the Committee on Industrial and Commercial Gas Research and the Personnel Committee. Mr. Rainey was a native of Manchester, N. H. and a graduate of Pennsylvania State College.

Earle F. Potter

president and general manager of The Missouri Natural Gas Co., died April 12, 1951. Mr. Potter served as his company's delegate to A. G. A.

Thomas R. Jones

founder and chairman of the board of The Oklahoma Contracting Co., one of the world's largest pipeline construction companies, died May 20 at 60 years of age.

Mr. Jones was once a chauffeur for Glen T. Braden, head of the Oklahoma Natural Gas Company. In 1917 Mr. Braden's company wanted to build a pipeline from Oklahoma City to Chickasha. Mr. Jones and Eugene Braden got the latter's father to finance them in organizing the Oklahoma Contracting Company to construct this pipeline. Since the first 60-mile pipeline, the company has laid 12,000 miles of pipe in almost every oil and gas area in the Western Hemisphere, Europe and the Near East.

Industrial gas school

(Continued from page 25)

operator who can restart manually. He then described the many ways of detecting flame failure by thermocouples producing electric current for relay operation and a flame rod which is energized and the current flowing through the flame itself to ground through the burner. This is one of the universally accepted methods today by using the flame itself as part of the conductor.

The next general classification, covering six lectures, pertained to heavy industrial applications of gas fuel. Included in this series was heat treating by Carroll B. Mershon, Continental Equipment Company. Mr. Mershon described this as an operation or combination of operations involving the heating and cooling of a metal or alloy in the solid state for the purpose of obtaining certain conditions or properties. Heat treatment consists of subjecting a metal to a definite time-temperature cycle, and at times a chemical effect by a medium surrounding the metal may be of importance. This phase of industrial gas application is regarded as most important to the industrial gas engineer in his daily contacts with his customers.

Another important field for the industrial gas engineer was presented by Hale A. Clark, Michigan Consolidated Gas Co., in his lecture on forging. He defined this process as the working of metal heated to a plastic state. It was brought out in the lecture and graphically illustrated by micro-photographs that the grain structures of forgings contribute to much greater strength than other methods of forming parts. Mr. Clark pointed out how gas-fired forge furnaces of proper design could produce hot metal which had a minimum of scale, thus prolonging die life under the hammers.

Specific applications of gas in industry occupied the balance of this series. J. D. Russell, Young Brothers Co., presented an illustrated talk on drying and finishing ovens. He showed the principles of good practices in various types of oven design, the application and influence of air heaters for drying and finishing a multitude of products including ovens of batch type, cabinet, shelf, drawer, kiln, and car types. Direct and indirect air heaters were discussed as well as recirculating systems.

While steel occupies a large part of the metalworking industry, non-ferrous metals are equally important in their sphere of application. Due to their being non-ferrous they require an entirely different technique of melting. The various types of non-ferrous melting furnaces and practices involving different types

of crucibles, pots and reverberatory furnaces were described by R. A. Hastings, Continental Industrial Engineers, Inc. It was pointed out that some 40 elements are used commercially in the non-ferrous field and each requires a different melting temperature which calls for specialized equipment and controls.

In addition to special melting practices being involved, Mr. Hastings went on to show how further specialized processing was required for sand, permanent mold, and die casting of various non-ferrous metals. The gas applications involved in this part, where metal is held for machine casting, also require close control of temperature.

Another highly specialized application of industrial gas is in ceramic kiln firing. The manufacturing operations, problems and product requirements involved in the uses of gas were discussed by Dr. J. T. Robson, Ferro Enamel Corporation. After listing the advantages and disadvantages of various fuels for kiln firing, he spoke about the three general types of kilns commonly used in this business, classified as muffle, semi-direct, and direct, in both continuous and batch types. Practically all types of ceramics can be fired in the latter two kilns. The muffle kiln is used for final firing on high grade china and art ware.

Closely allied to ceramics are the processes used in the manufacture of glass. These were presented by A. K. Lyle, Hartford Empire Company. This was largely a description of the process of glass making from the mixing of the basic ingredients for various types of glass through the melting in gas-fired tanks, forming and finishing of the product. Mr. Lyle pointed out that a peculiar characteristic of glass manufacture is that it is the only process which must be worked hot all the way through. Once started, it cannot be stopped anywhere along the line.

Under the classification of steam generation and fluid heating, four lectures were devoted to boilers. A general description of all types of boilers was given by D. M. Barrett, Washington Gas Light Company. He emphasized the ASME classifications of low pressure heating boilers (stamped H 2), miniature boilers (stamped M 3), power boilers (stamped S 4), and locomotive boilers (stamped L).

By means of slides of cut-away illustrations and drawings, the different types of boilers were vividly portrayed stressing whether they were water tube or fire tube and whether they were single-pass, two-pass, or multi-pass.

Then came a discussion on gas-designed boilers and conversion practices up to 50 H.P. by A. D. Wilcox, Eclipse Fuel Engineering Company. Students were apprised of commercial boilers used for heating process steam and with recommendations for sizing gas-designed boilers to the job and conversion burners to the job.

Package steam generators and fire tube boilers were discussed by A. D. Frydendall, The Peoples Gas Light and Coke Company. He pointed out the many problems which the industrial gas engineer may meet when converting to gas fuel. Most fire tube boilers of the two pass updraft and downdraft type, he said, are low pressure. Most high pressure fire tube boilers are of the Scotch Marine or locomotive type.

Large boilers for power plants and such over 500 hp was the subject of L. S. Reagan, Webster Engineering Company. Here again the problems facing the industrial gas engineer when planning to convert these boilers to gas were carefully described. They involved the problems of converting large pulverized coal burners or stoker fired boilers to gas with the necessary methods of calculating inputs and efficiencies. Again the students were given the complex formulae to compute bhp, efficiency, water evaporation, pounds of steam per hour, and other necessary data.

Two specific applications of gas of interest to gas men are commercial air conditioning and immersion heating. These subjects were treated on respectively by F. B. Neyhart, Carrier Corp., and M. J. Dewey, Dewey Gas Furnace Company. On air conditioning, the Carrier system of using steam (presumably from a gas-fired boiler) to operate the absorption refrigeration cycle, was described. Since only the latent heat is removed from the steam in this system, the steam rate, #/HR/Ton is essentially constant regardless of the pressure and offers a profitable steady gas load for steam generation.

On immersion heating, Mr. Dewey outlined the various means of heating liquids in tanks. Where practical, and in most instances, heating liquids in tanks by means of immersion tubes is the best. He described the burner equipment of an immersion tube wherein a long lazy flame is desired, a flame in which combustion is carried out by secondary air being supplied along the length of the flame so that it will be sustained throughout the length of the tube. By means of such a flame, an even heat can be maintained throughout the tube, thus imparting even heat to a large part of the bath. Tables were presented to compute solution tank heat losses in the temperature range of 90° to 220° F and for the input ratings for various temperatures of liquids to be sprayed.

Concluding the technical aspects of the course were lectures on special applications of industrial gas. Paul A. Furkert, Gas Appliance Service, Inc., spoke on high speed gas heating involving a description of localized flame and high head radiant heating with its inherent advantages for certain types of heat treating. The most general application of this type of heat treating is by the commercial heat treater who must process a limited number of pieces of varying sizes. The equipment, consisting of high head radiant burners using premixed gas, is readily adjustable to odd sizes and can be directed at specific sections of a piece to permit localized treatment. Automatic equipment is available for mass production which provides indexing positions and automatic handling of the parts.

Space does not permit the full reporting of the lecture on prepared atmospheres by A.G.A. utilization engineer, C. George Segeler. This talk was of an extremely high technical nature involving the physical chemistry of steel and the gases used for atmospheres to produce the various metallurgical characteristics desired.

Application of radiant burners to facilitate textile and paper drying was covered by G. R. Van Kampen. No particular problem confronts the industrial gas engineer who needs only to compute the pounds of water that must be evaporated in a given time, and then figure the burner size to do the job.

Carl Wierum, The Brooklyn Union Gas Co., noted the multitude of small applications of gas that could be sold if gas men are diligent in their surveys of customers' plants. Solution heating, steam for processing, varnish cooking, fume incineration were among the few applications that would produce small but steady gas loads.

A similar talk by Stanley M. Lausch, Public Service (N. J.) Electric & Gas Co., listed the many gas applications available in the volume food processing field. Citing a few examples of meat and fish smoking, coffee and cocoa roasting, dehydration of fruits and vegetables, powdered milk and egg production, he showed another series of profitable load building.

The final day was devoted to industrial sales problems and salesmanship. C. C. Eeles, The Ohio Fuel Gas Co., presented an outstanding paper on competitive and standby fuels. He outlined the procedure to be used in preparing a comparative fuel analysis and selecting the fuel for industrial heat processing. This included computing all the costs of the fuel to be replaced. In addition to the invoice cost of the fuel there were many other cost factors to be considered, such as transportation, storage and handling, investment of fuel in storage and others. A portion of the lecture was devoted to selection and recommendation of standby fuels when necessary.

Customer relations were presented by Ralph Wenner, The Ohio Fuel Gas Company. He stated that customer relations are human relations applied to this field of activity. While the students had a good technical background in industrial gas it was also required that they have the training and ability to persuade people to use their product. Mr. Wenner explained how an interview should be conducted so as to create and stimulate an interest in the product and how to make the customer like you.

This theme was continued and enlarged upon by "Bud" Koester, Jr., W. Wirt Young and Associates. He stressed the aids that are available to the industrial engineer, especially the technical and detailed information made available by the manufacturers of industrial gas equipment. He admonished the class to work with the manufacturer's representative in order to insure that proper equipment is selected for the job, and is properly installed and adjusted.

An inspiring address by Milton J. "Fireball" Firey, owner-manager of the Congress Hotel, Baltimore, wound up the class sessions. He cautioned the students that they must ever be on the alert for changing conditions. They should be ready, he said, to adapt their sales presentations to the diversified needs of their customers and prospects.

Terry Hart, Nashville Gas and Heating Co., chairman of the Sales Training Committee which was in charge of the Industrial Gas School, made opening and closing remarks on the conduct and purpose of the School. He also officiated as "Principal" during the sessions.

Carl H. Lekberg, Northern Indiana Public Service Co., chairman, Industrial and Commercial Gas Section, congratulated the students on attending a series of lectures that should broaden their knowledge in the industrial gas field.

SGA considers need for joint industry action

SOUTHERN GAS ASSOCIATION'S biggest convention in history came to a successful close at Biloxi, Miss., on April 25 with election of Lyman L. Dyer, Lone Star Gas Co., Dallas, as 1951-52 president.

More than 1,311 delegates attended the three-day sessions. Inspiring messages were brought by gas industry leaders and speakers from outside the industry.

Besides President Dyer, new officers of SGA are: first vice-president—J. H. Wimberly, Houston Natural Gas Corp.; second vice-president—H. K. Griffin, Mississippi Gas Co.; secretary—J. L. Campbell, New Orleans Public Service, Inc.; assistant secretary—Kyle Turner, Atlanta Gas Light Co.; treasurer—H. V. McConkey, Southern Union Gas Company, Dallas.

Retiring President Carl H. Horne of SGA, in his address, laid down a three-point program for the coming year.

"I think it is well," he declared, "that the SGA study its relationship with A. G. A. in order to further the interest of its members. The greatest benefits to the membership common to both of these associations can be had if each formulates its programs to be constructively complementary to each other."

Mr. Horne also emphasized the importance of training qualified leadership for the gas industry. He suggested that members consider granting scholarships to qualified high school graduates who would eventually make good supervisors and technicians for the gas industry.

New officers of Southern Gas Association elected at Biloxi convention: (Left to right) Kyle Turner, assistant secretary; H. V. McConkey, treasurer; H. K. Griffin, second vice-president; L. L. Dyer, president; J. H. Wimberly, first vice-president; C. H. Zachry, vice-chairman of the advisory council. Not present when the above picture was taken was J. L. Campbell, elected secretary of the association

His third point was the need for protecting the cooking load. "We suffer competitively on the gas range," he said, "by virtue of maldistribution. We do not have the broad spearhead of dealer outlets enjoyed by our competitors. Our industry has a great need for joint action between manufacturers and utilities to solve this problem."

D. A. Hulcy, president, Lone Star Gas Co., and president, American Gas Association, cited impressive statistics in his talk on the gas industry's role in the current emergency. He noted that during the past 15 years, the industry has gained eight million customers, and increased its sales 223 percent while lowering its prices.

He described the A. G. A. PAR Plan (Promotion, Advertising, Research) and said one of its incidental effects has been of immense importance.

"It aroused enthusiasm within the industry," Mr. Hulcy said. "It acted as an immediate shot-in-the-arm to raise the morale of the industry's personnel, and it put the outside world on notice that here was an industry with full faith in its own future and in the future of America."

He cited two major tasks facing the industry: "First, we must maintain fully and at all times our ability to assume successfully the heavy industrial work of assisting in turning out the manifold implements of war that our country's situation in the world may require. Second, we must make sure that the service we render to millions of American homes will be maintained in a high state of efficiency. On this we must insist, for in a time of emergency such as this it is essential to sustain a high morale among the people. No matter how long it takes, nor what may be required, we must see to it that the gas industry measures up and carries on to the end."

Wednesday morning's general session was given tips on employee relations by Dr. Walter J. Couper, Industrial Relations Counselors, Inc., New York.

"The present problem," he said, "is to cut real wages and other forms of personal income. Harassed by government regulations and employee unrest, management will find their only—but not complete—salvation in much more systematic plans for wage and salary administration."

Managing Director R. R. Suttle's report showed the SGA has grown in five years from 20 gas companies and about the same number of manufacturer-distributors to 66 companies and 132 manufacturer-distributors. Nine of the former and 26 of the latter were added during the past year.

The current agitation against exportation of gas from producing states brought some frank remarks from N. C. McGowen, president, United Gas Pipe Line Co., Shreveport, in an address to the transmission section Monday afternoon.

"Let us take the time to explain to the folks who are misinformed or those lacking proper information about our gas industry that we have large gas reserves," he said; "that we are finding and developing new reserves on a basis that assures dependable supplies of gas far into the future.

"Let us point up how our pipelines have created new wealth by finding markets for a mineral resource that not too many years ago was flared to the air for lack of markets. Let us tell the story of millions of dollars paid each year to land and royalty owners. Let us call attention to the new industries we are helping to bring to our own Gulf South. Let us point with understandable pride to the contributions which natural gas is making to the overall economy of our nation. Let us see to it that our employees, our stockholders, know our story—and know it well.

"I will always hold to the opinion that an informed public will be a fair public. We have a story to tell. Let us tell it—sincerely, honestly, over and over again."

Specialized problems in various fields were discussed by SGA members during separate sessions of the accounting, distribution, employee relations, sales and transmission groups. In addition, an accident prevention forum was held on Monday morning and afternoon.

Associated organization activities

PGA elects officers

W. E. L. IRWIN, of the Philadelphia Electric Co., Ardmore, was elected president of the Pennsylvania Gas Association, at its annual meeting at Wernersville, Pa. At the same time, Gordon M. Jones, United Gas Improvement Co., Philadelphia, was elected first vice-president, while Andrew S. Morgan, Lancaster County Gas Co., Lancaster, was named second vice-president and Edward G. Boyer, Philadelphia Electric Co., third vice-president. To the post of secretary, the association re-elected William Naile, Lebanon Valley Gas Co., Lebanon, while James A. Schultz, Consumers Gas Co., Reading, was re-designated treasurer.

The meeting was addressed by David M. Walker, Secretary of Labor and Industry of the State of Pennsylvania, and by Thomas S. Lever, retiring president of the association and vice-president of The Philadelphia Gas Works Company.

Large attendance predicted for CGA meeting

THE FORTY-FOURTH annual convention of Canadian Gas Association will be held June 18-21, at Bigwin Inn, Lake of Bays, Ontario. Advance registrations indicate an attendance of approximately 300 with full representation from gas utilities and gas appliance manufacturers across Canada. As usual, the convention is attracting delegates from many parts of the United States.

H. G. Smith, president of the association, will officially open the convention with his presidential address on Tuesday morning, June 19. However, a number of delegates are arriving Sunday, June 17. On Monday, June 18, organized group discussions will be held. E. C. Phillips, assistant to the general manager, The Consumers' Gas Co. of Toronto, will act as chairman of the discussion on sales and promotion. P. W. Geldard, distribution engineer, The Consumers' Gas Co. of Toronto, will act as chairman of a discussion group on civil defence problems. F. R. Palin, secretary, Union Gas Co. of Canada, Ltd., will head discussion on accounting and finance.

As chairman of the Speakers' Committee, P. W. Geldard, assisted by W. J. Beacock has selected an all-Canadian roster of prominent speakers. On Tuesday, June 19, George F. Knight, general superintendent of works, The Consumers' Gas Company of Toronto, will speak on "Toronto's Ten Million Foot All-Welded Holder." W. F. Holding, president, General Steel Wares Ltd., and immediate past-president of the Canadian Manufacturers' Association, will speak on "Building Up Canada!"

The annual CGA Golf Tournament will be held Tuesday afternoon, June 19, under the direction of Alec Thomson, Dresser Manufacturing Co., Ltd. This tournament will see the "President's Trophy" put up for annual competition among members for the first time.

Speakers on Wednesday, June 20, include K. F. Tupper, O.B.E., Dean of the Faculty of Applied Science and Engineering, University of Toronto, who will speak on "The Future of Urban Centers in the Atomic Age." Crawford Gordon, O.B.E., coordinator of defense production, Department of Defence, Ottawa, and executive vice-president, John Inglis Co. Ltd., will speak on "The Impact of the Present Defense Program of Canadian Industry." Mrs. Ellen Fairclough M.P., the only lady member of the Canadian House of Commons, will speak on "The Family of the Boss." P. W. Geldard will tell about "Subway Construction in Toronto", and Louis O'Sullivam, assistant general manager, Quebec Hydro-Electric Power Commission, will speak on "Montreal's New Service Building."

The President's reception and the annual dinner will be held Wednesday evening, and will be followed by presentation of prizes.

The Ladies' Committee headed by Mrs. H. G. Smith and assisted by J. M. Moffat, Empire Stove & Furnace Co. Ltd., have arranged a schedule of entertainment for the ladies which will include bridge and afternoon tea, putting contests, etc.

As in previous years the hospitality club will be the center of social activities with A. J. Strain, Ruud Manufacturing Co., in charge of the Entertainment Committee.

Located in the Highlands of Ontario, Bigwin Inn offers a scenic setting for the CGA Convention which was also held there in 1949. Accommodations and convention details are being handled by W. A. Higgins, executive secretary and treasurer, Canadian Gas Association, P.O. Box 158, Terminal "A", Toronto, Ontario.

Statistics of the Month

● **Gas range shipments**—March, 303,000 units, up 19.2 percent over 254,000 shipped in February; up 14.8 percent from 264,000 units shipped March, 1950.

—First quarter, 817,600 units, up 28.2 percent from 638,000 last year.

Electric ranges shipments—March, 185,400.

● **Gas burner shipments**—March, preliminary, 56,200 units, up two percent from 55,100 in February, but 34.8 percent below 86,200 shipped March, 1950. (Breakdown: 35,300 gas-fired furnaces, 8,400 gas-fired boilers, 12,500 conversion burners.)

—First quarter, 163,300 units, 0.8 percent below the 164,700 in 1950. (Breakdown: 107,700 gas-fired furnaces, 21,400 gas-fired boilers, 34,200 conversion burners.)

Oil-fired burners—January and February, 74,000 units, as compared with 107,200 gas burners.

● **Automatic water heaters**—March, 240,000 units, up 11.6 percent from 215,000 in February; up 38.9 percent from 172,800 units shipped March, 1950.

—First quarter, 680,600 units, 47.6 percent above 460,900 in 1950.

Electric storage water heaters—February, 76,800 units, as compared with 215,000 gas water heaters.

● **Utility gas sales**—March, 4,746 million therms, a decline of 3.5% from the 4,922 million therms sold in February, but an increase of 12.6% over 4,215 million therms sold in March, 1950.

Wiggins holder article at right contributed by Editorial Committee, A. G. A. Operating Section.

Indiana Gas Association names officers

After the returns were in, at the Indiana Gas Association convention, Dean T. Burns, center left, assistant general manager, Citizens Gas and Coke Utility, and chairman of the association's nominating committee, was snapped congratulating President-Elect E. E. Linburg, president, Richmond Gas Corp. Flanking them are E. M. Hahn, left, president, Kokomo Gas and Fuel Co., elected vice-president and, right, C. W. Goris, Northern Indiana Public Service Co., re-elected secretary-treasurer

Wiggins gas holder described

THE WIGGINS GAS HOLDER, a relatively recent development in gas storage equipment of wide interest to gas engineers was the subject of a recent meeting of the Long Island Group, Engineers' Forum, A.S.M.E. The speaker was Joseph Thompson of the General American Transportation Company.

The Wiggins holder is an application of the Wiggins floating top, long in use in the petroleum industry for the storage of volatile vapors present in liquid fuels. The water or tar seal used in conventional holders is replaced in the Wiggins holder with an asbestos fabric impregnated and coated with non-porous synthetic rubber, which rolls and unrolls with the vertical movement of the holder lifts.

Mr. Thompson illustrated his talk with a cut-away model of the Wiggins holder and a film taken during construction of a 500 Mcf holder for a chemical company.

New A.G.A. members

Gas companies

Central Kentucky Natural Gas Co., Lexington
(T. J. Tonkin, Jr., vice-president)
Home Gas Co., Pittsburgh, Pa.
(Irving K. Peck, vice-president & general manager)
Keystone Gas Co., Inc., Pittsburgh, Pa.
(Irving K. Peck, vice-president and general manager)
Southeastern Michigan Gas Co., Port Huron
(William H. Huffmaster, general manager)
Virginia Gas Transmission Corp., Lexington.
(John W. Kelly, vice-president)

Associate companies

Cargill and Co., Richmond, Va.
(James N. Cargill)

Manufacturer companies

Appliance Accessory Co., Verona, Wisc.
(W. R. Carnes, manager)
The Bristol Co., Waterbury, Conn.
(H. E. Beane, general sales manager)
Century Heating and Sheet Metal Co., Detroit
(Edward Sandus, owner)
Coon Engineering Corp., Denver, Colo.
(James G. Coon, president)
Crise Controls Division, Columbus, Ohio
(F. P. Maxwell, president)
Electrocap Mold Co., Pittsburgh, Pa.
(Fred E. Nelson, general manager)
Federal Boiler Co., Inc., Midland Park, N. J.
(Raymond H. Bohr, plant manager)
Hauck Manufacturing Co., Brooklyn
(Charles W. Hanlon, sales manager)
Jaden Manufacturing Co., Hastings, Nebr.
(Hal Lainson, secretary)
Metzer Machine & Engineering Co., Milwaukee (Henry Metzer, Jr., partner)
Palmer Manufacturing Corp., Phoenix, Ariz.
(Oscar C. Palmer, president)
Piatt Products Corp., Lansing, Mich.
(J. D. Montgomery, president)
Peerless Foundry Co., Indianapolis, Ind.
(Frank M. Mutz, president)
Petroleum Heat and Power Co., Stamford, Conn.
(J. F. Corrigan, director of marketing)
Seidelhuber Iron and Bronze Works, Seattle.
(Frank Seidelhuber, president)
Sterling Heat Specialties Inc., Westfield, Mass.
(C. E. Scott, vice-president)
Wilder Products Co., Springfield, Ohio
(Milton H. Wilder, treasurer)

Individual members

George E. Allen, American Natural Gas Service Co., Detroit, Mich.
George W. Allen, Stewart-Warner Corp., Indianapolis, Ind.
Henry L. Allen, Florida Power and Light Co., Miami, Fla.
Ernest J. Banks, Dominion Foundries and Steel Ltd., Hamilton, Ontario, Canada
Roger Boughton, Utility Clamp and Equipment Co., Los Angeles, Calif.
Charles F. Brannan, Arkansas Western Gas Co., Fayetteville, Ark.
John R. Bruns, Institute of Gas Technology, Chicago, Ill.
Alden Bryant, Coast Counties Gas Co., Concord, Calif.
John S. Cain, Arkansas Western Gas Co., Dallas, Texas
Thomas R. Campbell, Institute of Gas Technology, Chicago, Ill.
E. G. Carey, Gas Heat, Inc., Portland, Ore.
Robert O. Caulkins, Southern Counties Gas Co., Los Angeles, Calif.
D. W. Collins, Perry Gas Co., Perry, Iowa
Louis J. Delaney, Reliance Reg. Div., American Meter Co., Alhambra, Calif.
John L. Denton, Institute of Gas Technology, Chicago, Ill.
Charles L. Digiovanni, Laclede Gas Co., St. Louis, Mo.
Sidney S. Doney, Jr., Southern Counties Gas Co., Los Angeles, Calif.
T. R. Eilenberg, Consolidated Edison Co. of New York Inc., New York, N. Y.
James E. Fields, Pacific Gas and Electric Co., Fresno, Calif.
R. H. French, Michigan-Wisconsin Pipe Line Co., Detroit, Mich.
Richard F. Graef, The H. K. Ferguson Co., Cleveland, Ohio
Roy L. Groves, Oklahoma Natural Gas Co., Tulsa, Okla.
Hampton Halsell, Arkansas Western Gas Co., Fayetteville, Ark.
Bruce B. Harris, Southern Counties Gas Co., Huntington Park, Calif.
Robert L. Hays, Institute of Gas Technology, Chicago, Ill.
Richard A. Heehs, Roots-Connersville Blower Corp., Chicago, Ill.
Dan H. Heierman, Heierman and Janes-Propane Gas Service, Redmond, Ore.
B. E. Hunt, Institute of Gas Technology, Chicago, Ill.
David H. Hurlbut, Milwaukee Gas Light Co., Milwaukee, Wisc.
A. T. Johnson, Jr., United Gas Corp., Jackson, Miss.
Sidney Katz, Institute of Gas Technology, Chicago, Ill.
James B. Lawrence, Bethlehem Apparatus Co., Hellertown, Pa.
V. J. Levy, Southern California Gas Co., Los Angeles, Calif.
E. C. Link, Jr., Houston, Texas
Robert F. McNamara, Institute of Gas Technology, Chicago, Ill.
Loren N. Miller, Institute of Gas Technology
Daniel S. Ortiz, Institute of Gas Technology
Albert E. Paul, Winnipeg Electric Co., Winnipeg, Man., Canada
Kenneth D. Raven, Institute of Gas Technology, Chicago, Ill.
Russell A. Sault, Institute of Gas Technology
William S. Sims, Philadelphia Electric Co., Philadelphia, Pa.
Paul E. Smith, Institute of Gas Technology
James R. Stewart, Jr., Institute of Gas Technology, Chicago, Ill.
Arthur J. Stubbs, Pacific Gas and Electric Co., San Francisco, Calif.
Robert K. Von Der Lohe, Southern Counties Gas Co., Los Angeles, Calif.
Temple S. Voorheis, Coen Company, San Francisco, Calif.
John C. Warren, Southern Counties Gas Co., Los Angeles, Calif.
William D. Weidlein, Amarillo, Texas
Richard R. West, Southern Counties Gas Co., Los Angeles, Calif.
James R. Wilson, Southern Counties Gas Co., Indio, Calif.

Excess Profits

(Continued from page 13)

base period net income is determined by applying the proclaimed rate of return for taxpayer's industry classification to its average assets during the base period. To prevent trivial relief claims, reconstructed income may not be used if it does not exceed by ten percent income computed under the general average.

Additional substitutes for discretionary relief are to be found in the constructive average base period net income based on change in products or services. In order to qualify for relief under the new product provision, the change must have been "substantial." This means that by the end of the third year or sooner following the year in which new products or services were introduced, taxpayer's gross income therefrom must be more than 40 percent of its total gross income or one-third of its net income in that year. The taxpayer must also show that its net income in any taxable year in which it has satisfied the aforementioned percentages was greater than 125 percent of average excess profits net income during the base period year or years prior to the first change in product or service used in qualifying under the income tests. Substitute average base period net income is computed by the application of the base period rate of return to total assets as of a given year, depending upon whether qualification occurred during the base period or thereafter. No adjustment for capital additions in the base period is permitted.

Additional relief methods relate to certain corporations who have at least doubled their capacity for production during 1947, 1948 and 1949 over 1946 capacity or have commenced business after the beginning of the base period, namely, so-called new corporations. These methods involve application of industry base period rate of return. Lastly, special relief is provided for so-called depressed industry subgroups, namely, for taxpayers in industries whose average earnings rate during the period 1946-1948, inclusive, was less than 63 percent of the average rate during the eleven-year period 1938-1948 inclusive. The average base period net income of a taxpayer in such an industry is arrived at by multiplying its average assets during the base period by a figure equal to 80 percent of the rate of return for such industry during the period 1938-1948, as proclaimed by the Secretary of the Treasury.

Public utilities engaged in the production, transmission or distribution of electricity or gas are, of course, eligible to avail themselves of all the relief methods described. It is obvious, however, that in most, if not all, cases such a utility which began business prior to 1946 would have little chance of qualifying under the change of products or services itself. There may, however, be interesting opportu-

nities for relief under the tests relating to substantial increase of capacity for production and commencement of business after 1945 in the case of a new corporation.

The remaining four alternative methods relate to the computation of income in the case of so-called growing corporations which began business before 1946. To obtain relief as a growing corporation, the taxpayer must satisfy either one of two major tests. Under the first test, a taxpayer will qualify if its total payroll for the last half of the base period is either 130 percent or more of its total payroll for the first two years of the base period or, alternatively, if its gross receipts during the last two years are 150 percent or more of its gross receipts for the first two years. In either case the taxpayer's total assets at the beginning of the base-period must not be more than $20 million. The latter amount includes assets of a group of corporations that may file a consolidated return, even though no consolidated return is actually filed.

The second test is satisfied if the taxpayer meets all of the following conditions, irrespective of the value of its assets: (a) net sales for the first six months of 1950 are 75 percent or more of the average net sales in the calendar years 1946 and 1947; (b) 40 percent or more of net sales for the calendar year 1950 are attributable to a product or class of products not generally available to the general public in 1945 or earlier; and (c) net sales attributable to such a product or class of products in the calendar year 1946 are not more than five percent of net sales in 1949.

Any calendar year taxpayer that qualifies under either the first or second test may determine its alternative average base period net income on the basis of its actual income in 1948 and 1949, its actual income in 1949, or 50 percent of its actual income in 1949 and 40 percent of its actual income in 1950. A still further alternative is open to taxpayers qualifying under the second test whose excess profits net income for 1949 is not more than 25 percent of its excess profits net income for the calendar year 1948.

Public utilities are again free to utilize whatever relief is available under the alternative basis for growing corporations. It does not seem possible, however, that an electric or gas utility could qualify under the second test because electricity and gas would be considered as having been generally available to the general public before 1946. This is despite the fact that in particular areas prior to 1946 there may not have been any of such services furnished. It is generally understood that the second test was designed to take care of new industries such as television.

At the hearings before the Committee on Ways and Means of the House of Representatives on the 1950 excess profits tax, representatives of electric and gas utilities proposed several recommendations to lighten the impact of excess profits tax. There were many in the utility industry who opposed any excess profits tax; however that view was not unanimous by far. Congress did not follow the precise recommendations contained in proposals bearing approval of committees of Edison Electric Institute and American Gas Association. It did provide a special form of alternative relief available exclusively to regulated public utilities.

For purposes of the special form of relief in determining excess profits credit, public utilities include companies that furnish electric, gas, water, transportation, pipeline, telephone and telegraph services. To be entitled to the relief, however, a company must be under the regulatory jurisdiction of a governmental body as to rates. It must derive at least 80 percent of its gross income (exclusive of dividends and capital gains and losses) for the taxable year from aforementioned services.

As previously indicated, the excess profits credit is computed generally either on the earnings method or on the invested capital method, whichever credit results in the lesser excess profits tax. Notwithstanding that general rule, a regulated public utility may compute its credit on the earnings method, the invested capital method or under the special method to be discussed presently, whichever results in the smallest excess profits tax. A public utility is not required to make any election for use of the special method. The application of that special method, if resulting in the smallest excess profits tax, is automatic.

The special method provides an excess profits credit consisting in general of the sum of federal income taxes and a fixed percentage rate of the sum of adjusted invested capital and average borrowed capital, subject to certain adjustments. In the case of electric and gas utilities and certain other utilities, that rate is six percent. In the case of telephone and telegraph utilities and air transportation companies, the rate is seven percent. Adjusted invested capital in the case of electric and gas utilities is the sum of average outstanding common and preferred capital stock accounts and surplus accounts, capital and earned, all as recorded on taxpayer's books. In the case of certain other utilities, adjusted invested capital means in the main invested capital determined on the asset aproach.

In any event, adjusted invested captial in the case of all utilities, for purposes of the special alternative method, does not include historical invested capital. As has been seen, the taxpayer must specially elect to compute its invested capital on the historical invested capital approach. Consequently, if a public utility is to have the benefits of historical invested capital, its credit cannot be under the special method.

It is not to be understood, however, that once having merely elected to use historical invested capital for any year, a regulated public utility cannot have its credit computed under the special method for that year. The utility is still entitled to obtain the smallest tax available to it under any method of determining the excess profits credit.

As under the World War II law, there are provisions dealing with the computation of the excess profits credit where there have been tax-free reorganizations and exchanges and also various forms of intercorporate liquidations. The benefits of those provisions are available to regulated public utilities, as well as to taxpayers generally. If, however, even after tax-free reorganizations and intercorporate liquidations, a regulated public utility finds that the special method of determining excess profits credit results in the smallest amount of tax, that method takes precedence over the provisions relating to such reorganizations and liquidations.

1951

JUNE

1-2 •A. G. A. Executive Conference, Edgewater Beach Hotel, Chicago.

8 •A. G. A. Great Lakes Personnel Conference; A. G. A. Midwest Personnel Conference, President Hotel, Kansas City, Mo.

18-19 •A. G. A. New York-New Jersey Regional Gas Sales Conference, Berkeley-Carteret, Asbury Park, N. J.

18-21 •Canadian Gas Association, annual convention, Bigwin Inn, Lake of Bays, Ontario

18-23 •Association Technique de L'Industrie du Gaz en France, Nantes, France

25-26 •Michigan Gas Association, Grand Hotel, Mackinac Island, Mich.

26-29 •American Home Economics Association Annual Convention, Cleveland, Ohio. (A. G. A. will exhibit.)

SEPTEMBER

4-6 •Pacific Coast Gas Association Convention, Fairmont Hotel, San Francisco, Calif.

7 •New Jersey Gas Association, annual meeting, Monmouth Hotel, Spring Lake, N. J.

13-14 •Mid-West Gas Association, school and conference, Iowa State College, Ames, Iowa.

17-18 •Gas Industry Safety Conference, A. G. A. Accident Prevention Committee, Hotel Phillips, Kansas City, Mo.

22-23 •Maryland Utilities Association, fall conference, Virginia Beach, Va.

OCTOBER

8-9 •Texas Mid-Continent Oil & Gas Association, annual meeting, Beaumont, Texas.

15-17 •A. G. A. annual convention, St. Louis, Mo.

15-19 •National Metal Congress and Exposition, Detroit, Mich. A. G. A. will exhibit.

18 •Institute of Gas Technology, annual meeting, Chicago, Ill.

NOVEMBER

13-16 •A. G. A. Operating Section, organization meetings, Hotel New Yorker, New York, N. Y.

14-16 •Wisconsin Utilities Association, combination technical and sales convention, Gas and Electric Sections, Schroeder Hotel, Milwaukee, Wis.

DECEMBER

3-5 •Institute of Cooking and Heating Appliance Manufacturers, semi-annual meeting, Cincinnati, Ohio.

Personnel service

SERVICES OFFERED

Accountant—Natural Gas Pipe Line. Fourteen years' oil pipe line accounting. Clerk to Assistant Treasurer and Director. Knowledge office systems, procedures and operating expense in particular. **1672.**

Sales—Technical or **Administrative Assistant**—Seven years' engineering experience with gaseous fuels, appliances, distribution, gas manufacturing equipment and process development, also some sales. Desire position related to the above in the gas field. **1673.**

Sales and **Engineering Management**—Twenty years of engineering and administrative experience with well-known firms; demonstrated ability to organize and manage. Practical knowledge of all phases of industrial and commercial gas usage. Present position sales manager. Married. (46). **1674.**

Desires to be located in the mid-west or central states. **Managerial** responsibility of gas property 2000 to 3000 meters. **Technical** training and 14 years' distribution and utilization experience. Married. (38). **1675.**

POSITIONS OPEN

Engineer—Age 22 to 35—Preferably **mechanical** or **electrical.** Should have degree or the equivalent. Experienced with recording and controlling instruments or gas measurement. $4000 per year to start with opportunities for advancement. This position is with a large organization located in the Washington, D. C. area. A permanent position with excellent working conditions. Reply stating age, education, work history. **0609.**

Assistant Sales Manager—Large eastern gas company requires services of conscientious, ambitious man experienced in the sale of gas and gas appliances as they pertain to the industrial and technical branches of a large gas utility. Acceptable candidates must be capable of directing the aforementioned sections of the Sales Department. Engineering background necessary. Salary commensurate with ability. Reply giving complete resume of educational training and work experience. **0610.**

Superintendent to head **Production, Distribution,** and **Service** Departments for small utility on eastern seaboard. Five years' broad experience desirable. Send full information in first reply, including education, experience, salary requirements, availability, and references. Strictest confidence. **0611.**

General Operating Superintendent to supervise all operation, maintenance and service work of 8500 meter middle western natural gas utility. Should have had at least 10 years' experience in customer service work. Prefer engineering background, but not essential. Excellent working conditions. Please furnish complete details past experience, educational background, salary expected, references. **0612.**

Large natural gas transmission company requires services of man experienced in **Rate** and **Cost analysis** in its Rate Department. Salary commensurate with ability. Reply in detail, stating age, education, past experience, references, salary requirements. Replies held confidential. **0613.**

Mechanical Designer—A large Midwestern utility has available a permanent position offering excellent opportunity for development. Many employee benefits, including liberal pension, sickness benefit, and annual vacation plans; excellent personnel policies. Prefer man thirty to forty years old with experience in utility, steel mill, or other large scale operations on plant layout, equipment installation, and reinforced concrete and steel structures. Your reply in full detail will be treated confidentially. **0614.**

Assistant General Manager for middle west gas utility serving city over 250,000. Age 40 to 45, with 10 years' or more utility experience, preferably in gas operations. Technical degree preferred but not essential. Must be able to assume top management duties, including administration, public relations, and supervision of all phases of gas operations. Attractive salary commensurate with abilities and responsibilities. **0615.**

Engineers wanted by well established Gas Heating Appliances Manufacturer. Must be experienced in design, laboratory testing, and A. G. A. requirements. When writing give full particulars of training and experience. **0616.**

Natural Gas Company located in northwest has opening for recent graduate in natural gas or petroleum engineering for **general engineering work** in gas utility. Prefer individual with two or three years experience but will consider recent graduate. Replies confidential. **0617.**

Natural Gas Pipe Line Company located in northwest has opening for **gas measurement engineer** or **accountant,** age under forty, for general supervision of gas measurement and accounting for pipe line system. Replies confidential. **0618.**

Assistant Chief Gas Engineer—Established and expanding gas and electric utility company located in Wisconsin needs an experienced gas engineer to be functionally responsible for maintaining and developing the company's gas and water utility facilities. This permanent position is available to a graduate engineer with approximately 10 years of varied experience in gas utility work. Please write, giving full particulars of personal background, education, experience and present salary level. All replies treated with strictest confidence. **0619.**

Sales Manager—Combination utility requires aggressive sales manager experienced in merchandising gas and electric appliances. Must have ability to plan and direct merchandising and load building at several locations throughout the country. Salary commensurate with ability. Replies held confidential. **0621.**

Accounting

(Continued from page 45)

whereby the use of maps and records eliminated the duplication of records within the organization.

"Machine Accounting for Detailed Plant Records" was the subject of F. W. Ross, Pennsylvania Power and Light Company. His report pointed out the present and possible use of machine accounting methods applied to property record work. The entire Tuesday afternoon meeting was devoted to machine accounting; and again, the participation in the discussion period showed how popular is this subject.

One of the most timely papers was presented on Wednesday morning by Joseph Rachor, Arthur Andersen and Company, on the subject "Adapting Plant Accounting Records to Depreciation Study Requirements." Depreciation is not a static matter which can be predetermined by a formula for a company's entire future, Mr. Rachor declared. Studies should be brought up to date and statistics reconsidered at regular intervals. Companies should endeavor to use their own experience factors rather than any average for the industry since average industry experience factors might vary considerably from those of any particular company.

On Wednesday morning the Taxation Accounting meeting presided over by Charles Wigand, Commonwealth Services, Inc., and R. M. Dodds, Ebasco Services Incorporated, got off to a good start with Leo A. Diamond, attorney of Chadbourne, Wallace, Parke, Whiteside, Wolff, and Brophy firm, speaking on the highlights of excess profits taxation.

Following Mr. Diamond on the program was J. R. Weger, Consolidated Gas Electric Light and Power Company of Baltimore, who discussed recent rulings, tax legislation and related matters.

Rounding out the formal program was W. S. Alt, Union Electric Company of Missouri, who discussed significant recent tax cases.

O. G. Peterson, New York State Electric and Gas Corporation, presided at the Materials and Supplies meetings which provoked widespread interest.

The report of the Standard Packaging Subcommittee headed by L. R. Michelsen, The Peoples Gas Light and Coke Company, and G. B. Herr, The Peoples Natural Gas Company, showed further progress in the packaging of materials to facilitate handling.

The remainder of Tuesday morning and all of Tuesday afternoon was devoted to a panel discussion on material control. Acting as moderator was C. H. zur Nieden, Philadelphia Electric Company, who introduced the panel members who are specialists in their particular field. They were: accounting—R. M. Robinson, Republic Light Heat and Power Company; stores operations—E. F. Rodgers, Equitable Gas Company; and purchasing—J. C. Sims, The Brooklyn Union Gas Company.

Meetings on Wednesday featured C. J. Monica, Consolidated Edison Company of New York, Inc., speaking on "Simplification of Stores and Accounting Operations"; P. H. Butler Jr., Washington Gas Light Company, reporting on "Materials Handling Equipment Service"; Courtney Johnson, United States Department of Commerce, speaking on "Controlled Materials Plan"; and Frank Watts, United States Department of the Interior, speaking on "Petroleum Administration for Defense."

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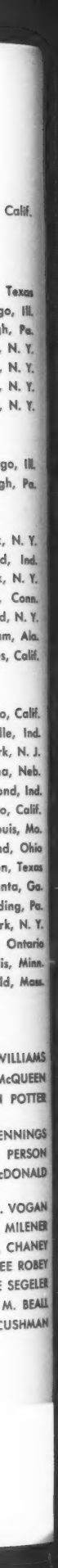
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